



JOURNAL

OF THE

Royal United Service Institution

PUBLISHED UNDER THE AUTHORITY OF THE COUNCIL.

Editor - Captain H. GARBETT, R.N. (Retired).

Vol. XLVI.—15th SEPTEMBER, 1902.—No. 295.

No. I.—SNAPSHOTS TAKEN BY AN OFFICER AT RUSTENBURG DURING THE BOER SURRENDERS.	PAGE
" II.—THIRD PRIZE ESSAY. (Honourably Mentioned.) Subject:—"WHAT SHOULD BE THE DISPOSITION OF THE MATERIEL AND PERSONNEL OF THE BRITISH NAVY IN TIME OF PEACE, AND HOW CAN THE PEACE STRENGTH BE MOST RAPIDLY EXPANDED TO WAR STRENGTH?" By Lieutenant Tristan Dannreuther, R.N. ...	1103
" III.—EDUCATION AND ITS ANCILLARY, THE MILITARY PROBLEM. Lecture by Lieut.-Colonel James Baker (late Minister of Education, British Columbia) ...	1152
" IV.—PERSONAL REMINISCENCES OF A FREE STATE BURGER DURING THE INVESTMENT OF LADY-SMITH ...	1170
" V.—RECONNAISSANCE AS A FINE ART UNDER THE PRESENT CONDITIONS OF WAR, By Major F. C. Ormsby-Johnson, R.M.L.I. ...	1194
" VI.—Naval Notes ...	1216
" VII.—Military Notes ...	1237
" VIII.—Correspondence:—"Suggestions for an Imperial Militia Service: Some Points for Consideration." By General E. F. Chapman ...	1248
Reply to 2nd Lieutenant C. F. Atkinson's Criticism on "Continental <i>versus</i> South African Tactics." By Lieut.-Colonel F. N. Maude ...	1248
" IX.—Naval and Military Calendar for August, 1902 ...	1249
" X.—Contents of Foreign Journals for August, 1902 ...	1251
" XI.—Notices of Books, and Principal Additions to Library in August, 1902 ...	1255

All Communications should be addressed to the Editor.

LONDON :

PRINTERS—J. J. KELIHER & CO., LTD., 99, VICTORIA STREET, S.W.
AND 33, KING WILLIAM STREET, E.C.

Entered at Stationers' Hall.

Price Two Shillings.

[All rights reserved.]

Sole Advertisement Contractor:—

Mr. C. GILBERT-WOOD, F.R.G.S., Granville House, Arundel Street, Strand, London, W.C.

Awarded THE GRAND PRIX, Paris, 1900.

ROSS' Patent New Model PRISMATIC BINOCULAR GLASSES.

LONDON MADE.

'The Great Power and Large Field of a Telescope in the Compass of an Opera Glass.' HAVE NO EQUAL.



Fig. 1.

'ONCE FOCUSED ALWAYS READY.'

Fig. 1. With Simultaneous Focussing Adjustment.

Power 8 times ... £8 10 0 net.

" 10 " ... 9 10 0 "

" 12 " ... 10 10 0 "

Fig. 2. Focussing by Revolving Eyepieces only.

Power 8 times ... £8 0 0 net.

" 10 " ... 9 0 0 "

" 12 " ... 10 0 0 "

LEATHER CASES INCLUDED.

Also Telescopes, Photographic Outfits, &c.

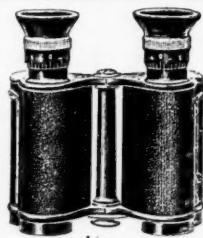


Fig. 2.

PRICE LISTS FREE.

Gold Medals and Highest Awards at all Great Exhibitions.

ROSS, LTD.,

111, NEW BOND STREET,
LONDON, W.

Contractors to His Majesty's Governments, British and Colonial.

ESTABLISHED 1830.

THE PORTABLE BUILDING Co., Ltd.,

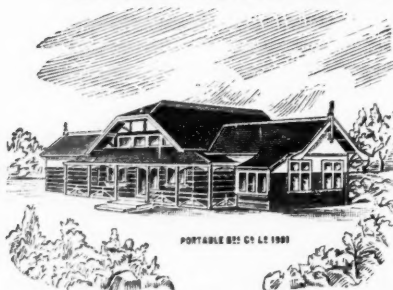
46a, Market Street, MANCHESTER,

And at FLEETWOOD.

P.O. Box 175, and 7 & 8, Buda Chambers, Johannesburg, South Africa.

Manufacturers of all Classes of Portable Buildings for Home and Export.

COLONIAL BUNGALOWS A SPECIALITY, FROM £90.



PORTABLE B21 C1 L1 1901

Sections kept in Stock ready
for making up on the shortest
notice.

Billiard Rooms, Shooting Boxes,
Cricket and Golf Pavilions,
Stables and Coach-houses,
Conservatories, Green-houses,
Poultry and Kennel Requisites,
&c., &c.

Our Representatives wait upon intending purchasers for Consultation Free.

FOR THE ..

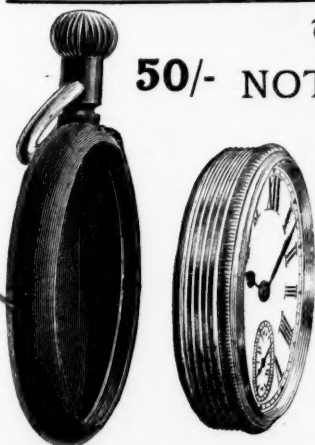
CORONATION CAMERAS. . .



BINOCULAR and
PRISMATIC
FIELD GLASSES.

AMATEURS' NEGATIVES
DEVELOPED IN A DAY.

The London Stereoscopic Company,
The Pioneers of Amateur Photography,
106 & 108, REGENT STREET, W., & 54, CHEAPSIDE, E.C.



The Goldsmiths Company's
50/- NOTED "SERVICE" WATCH

Manufactured expressly for Military
Campaigning, and used under Service
Conditions in all parts of the World
with complete success.

Goldsmiths Company.

*Hundreds of these Watches have
been sold to Officers and others
serving in South Africa, with
excellent results.*

KEYLESS LEVER WATCH,

jewelled in all holes, guaranteed a perfect
timekeeper, in shallow and smooth case,
from which it can only be removed by raising
winding catch and unscrewing from the
front, thus rendering it both dust & air tight.

In Oxidised Steel Case ...	£2 10s.
In Solid Silver Case ...	£3 10s.
In 18-ct. Gold Case ...	£12 0s.

WATCH LIST POST FREE.

The Goldsmiths & Silversmiths Company,
(The Goldsmiths' Alliance, Ltd. (A. B. Savory & Sons), late of Cornhill, is transferred to this Co.) LTD.
112, REGENT STREET, LONDON, W.

UNSOLICITED TESTIMONIAL JUST RECEIVED.

"Please put enclosed Watch in a Silver Case. The metal has,
as you see, rusted considerably, but I am not surprised, as I wore
it continually on my wrist for three months and a half. It kept
most excellent time and never failed me.—Yours truly,

"Capt. North Staffs Regt."

**CAPTAIN JAMES, P.S.C. (Honours), late R.E.,
Mr. E. CARLISLE, M.A. Cantab.,
CAPTAIN M. H. GREGSON, late R.E.,
5, LEXHAM GARDENS, CROMWELL ROAD, LONDON, W.,**

Prepare Resident and Non-Resident Pupils for the Navy, the Army,
all Civil Service Examinations and the Universities.

Special facilities are also afforded to Officers studying for the Staff College,
Promotion, Ordnance College, and Interpreterships.

RECENT SUCCESSES INCLUDE—

WOOLWICH, December, 1901.			
13th—D. D. Haskard	10,071	52nd—B. R. Cooper	9,041
27th—P. U. Johnson	9,518	53rd—G. J. P. St. Clair	9,023
28th—E. Cummings	9,500	70th—C. H. Ommannay	8,746
July, 1901.			
20th—G. H. Donnelly	9,689	64th—R. F. Cottrell	8,275
SANDHURST, December, 1901.			
CAVALRY.			
10th—F. B. Hurndall	5,781	16th—L. C. B. Merriman	5,133
INFANTRY.			
93rd—G. R. H. B. Maitland-Addison	6,491	— C. A. Tennyson*	5,596
— J. Stirling*	5,893	— H. A. Ibbotson	5,573
July, 1901.			
8rd Cavalry—V. C. P. Hodgson	7,539	104th Infantry—H. Hart	5,807
45th Infantry—H. G. Bignell	6,723	120th " H. T. C. Jones-Vaughan	5,590
96th " M. J. Raikes	5,911	4th King's India Cadet J. S. Oldham	5,521
97th " J. G. P. Romanes	5,886		
INDIA FORESTS, July, 1901.			
5th—Pelham Stewart Corbould			6,550
COOPER'S HILL, July, 1901.			
— F. W. Abbott			

MILITIA MILITARY COMPETITIVE.

Special arrangements have been made to meet the requirements of Militia Officers preparing for the Competitive Examinations to be held under the new regulations, and the important subjects of MATHEMATICS and MILITARY HISTORY are under the personal supervision of MR. CARLISLE and CAPTAIN JAMES respectively.

A Special Class in which particular attention is given to those who require rapid preparation and individual attention in the subjects which now embrace such an extensive range, has been started.

Our successes under the old regulations have been marked.

September, 1901.

Under the New Regulations.

INFANTRY.			
10th—C. W. Watson	16,949	— *M. L. Slaughter	9,720
13th—H. C. Stephen	14,830	— *W. C. Hutcheson	9,063
— *H. A. Hildebrand	9,750	— *G. H. M. Marsh	9,661
UNIVERSITY.			
13th—A. E. Burnett	5,035	14th—R. C. G. Pollock	4,970
CAVALRY.			
— E. R. Holloway			10,162

March, 1901.

Under the New Regulations.

CAVALRY.			
1st—C. E. Pym	18,159	2nd—H. H. Webber	14,160
ROYAL ARTILLERY.			
4th—K. E. Milford	17,357	6th—J. W. Povah	16,898
FOOT GUARDS.			
4th—E. S. Ward			8,281
INFANTRY.			
3rd—M. Fisher	18,676	10th—C. J. O'Sullivan	17,956
8th—T. E. Bennett	18,103	22nd—L. A. Jones	16,733
9th—H. J. U. Wilkins	17,981	— *V. F. Jackson	15,401
UNIVERSITY CANDIDATES.			
2nd—G. Thwaites	6,570	25th R. G. Raw	4,520
3th—A. F. Attwood	5,415	33rd—G. M. Jennings	4,030

Under the Old Regulations.

INFANTRY.			
3rd—H. L. Ainsworth			20,255

STAFF COLLEGE.

August, 1901.

The following Officers, who read exclusively with us, passed on the Competitive List:—

Capt. J. W. E. DONALDSON, Royal Field Artillery.
Capt. G. McK. FRANKS, Royal Garrison Artillery.
Capt. G. A. F. SANDERS, Royal Engineers.
Capt. A. GRANT-DUFF, 1st Bn. Royal Highlanders.
Capt. A. H. H. WILSON, 2nd Bn. Wiltshire Regt.
Capt. N. MALCOLM, D.S.O., 2nd Bn. Argyll and Sutherland Highlanders.
Capt. S. W. KING, Indian Staff Corps.
Capt. H. D. FARQUHARSON, Royal Marine Light Infantry.

And in addition, the following Officers received Nominations:—

Brevet Colonel A. W. MONEY, Royal Artillery.
Capt. A. R. FINLAY, 2nd Bn. Bedfordshire Regt.
* Subsequently admitted.

PROMOTION.

THIRTY-EIGHT OFFICERS passed last year for promotion, raising the total
number passed from us for this examination to

SIX HUNDRED AND FIFTY-NINE.

ESTABLISHED 1798.



ROYAL WARRANT HOLDERS
SINCE 1848.

HAVANNAH CIGARS

From the celebrated Factory
of RAMON ALLONES.

25/-, 40/-, 50/-, and 75/-
per 100.

Samples 5 for 1/6, 2/-, 3/-,
and 4/-.

IMPORTED CIGARETTES.

HIGH CLASS.

Per Box of 100 5/-, 6/-,
7/- and 8/-.

Sample 10 for 8, 10, 12 or
14 Stamps.

"DELAMORE."

A very cool and fragrant,
yet unscented SMOKING
MIXTURE, of choicest
American Tobaccos, highly
recommended.

Per 1-lb. Tin 2/-, 1/2-lb. 4/-.

Any of above sent Post Free on receipt of Order.

Price List on application.

WOOLLEY & COWLEY, 19, St. Dunstan's Hill, London, E.C.

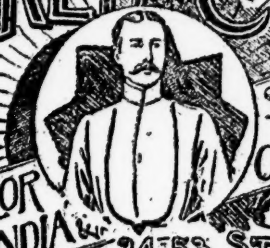
Telegraphic Address—

"RUSSATUS, LONDON."

CONTENTS FOR SEPTEMBER, 1902.

1. SNAPSHOTS TAKEN BY AN OFFICER AT RUSTENBURG DURING THE BOER SURRENDERS.
2. THIRD PRIZE ESSAY (HONOURABLY MENTIONED). SUBJECT:—"WHAT SHOULD BE THE DISPOSITION OF THE MATERIEL AND PERSONNEL OF THE BRITISH NAVY IN TIME OF PEACE, AND HOW CAN THE PEACE STRENGTH BE MOST RAPIDLY EXPANDED TO WAR STRENGTH?" BY LIEUTENANT TRISTAN DANNREUTHER, R.N. 1103
3. EDUCATION AND ITS ANCILLARY, THE MILITARY PROBLEM. LECTURE BY LIEUT.-COLONEL JAMES BAKER (LATE MINISTER OF EDUCATION, BRITISH COLUMBIA) 1152
4. PERSONAL REMINISCENCES OF A FREE STATE BURGHES DURING THE INVESTMENT OF LADYSMITH 1170
5. RECONNAISSANCE AS A FINE ART UNDER THE PRESENT CONDITIONS OF WAR. BY MAJOR F. C. ORMSBY-JOHNSON, R.M.L.I. 1194
6. NAVAL NOTES 1216
7. MILITARY NOTES 1237
8. CORRESPONDENCE:—"SUGGESTIONS FOR AN IMPERIAL MILITIA SERVICE: SOME POINTS FOR CONSIDERATION." BY GENERAL E. F. CHAPMAN 1248
REPLY TO 2ND LIEUTENANT C. F. ATKINSON'S
CRITICISM ON "CONTINENTAL *versus* SOUTH
AFRICAN TACTICS." BY LIEUT.-COLONEL F. N.
MAUDE 1248
9. NAVAL AND MILITARY CALENDAR FOR AUGUST, 1902 1249
10. CONTENTS OF FOREIGN JOURNALS FOR AUGUST, 1902 1251
11. NOTICES OF BOOKS, AND PRINCIPAL ADDITIONS TO LIBRARY IN AUGUST, 1902 1255

FRED C BAYLEY



**SHIRT MAKER,
HOSIER AND
COLONIAL OUTFITTER**

**TAILOR
INDIA**

**PYJAMAS
UMBRELLAS
TRUNKS, RUGS ETC.**

34, 53, STRAND LONDON, W.C.

BURBERRYS

(Tailors and Designers to WAR OFFICE.)



SLIP-ON

Cavalry and Infantry Patterns.

Made of TARTAN GABARDINE,
the Colour Sealed by the War Office
for Service Caps.

The SLIP-ON has stood the severest tests
throughout the South African War, and is
now officially recommended as Optional
Kit. Its powers of resisting rain are
incontestable, and it maintains the normal
warmth of the body under the most adverse
conditions.

Officers' Uniforms . .

Prices given for INDIVIDUAL of REGIMENTAL
NEW SERVICE, CEREMONIAL, MESS, or FROCK
with or without Accoutrements, on the WAR
OFFICE plan of supplying materials, or carried
through entirely.

30, Haymarket, LONDON. And BASINGSTOKE.



RAINPROOF RAGLAN
OVERCOATS
From 3 Guineas.

EVANS & CO.,

Tailors & Breeches Makers.

Vide "LAND AND WATER," October 27th, 1900:

"The name of Messrs. Evans and Co. is well known. Reasonable price, good material, and smart cut make their goods immensely popular among those officers who are sportsmen. It has taken some twenty years to build up the reputation of the firm, and it has been well earned.

"Every man who shoots knows what a comfort good breeches are which do not impede the action of the knees, and at the same time will look smart even when well worn. Evans and Co.'s Shooting Breeches are based on a long experience of the wants and wishes of Sportsmen at home and abroad."

We keep a CHOICE & SELECT STOCK OF MATERIALS for

**Frock Coats, Blue Serge Suits,
Dress Suits, Trouserings,
Tweed Suits, &c., &c.**

INSPECTION INVITED.

Patterns and form for measurements will be forwarded
to those who are unable to call, and satisfaction
is guaranteed.

P.J.J. writes from nr. Bath, Dec. 28, 1901:

"Dear Sir,—Knickerbockers and Norfolk fit very well. I am quite satisfied with the clothes, and they certainly fit better than any of the local tailors can manage to do, although they have opportunities for trying on before completion."

"New Club, Johannesburg.

"W. EVANS AND Co., London.

"Dear Sirs,—You will be pleased to hear I have this day received the suit of clothes you made me last January. I have tried them on, and they give me the greatest satisfaction.

"Yours truly, L.W."

These are a few recent Testimonials, amongst hundreds, we have received.
The originals can be seen.

77, GREAT PORTLAND ST., LONDON, W.





Surrendering and surrendered.



Jan Kruger, the late President's second son.



Boers and their transport.



Surrenders.

The centre man was shot in the leg at Mafeking. He has since been twice shot in the wooden leg, which he made out of a rifle stock.

SNAPSHOTS TAKEN BY AN OFFICER AT RUSTENBURG DURING THE
BOER SURRENDERS.



SOLE PROPRIETOR AND PRINCIPAL: MR. H. F. TRIPPEL.
PREPARATION FOR ALL ARMY EXAMINATIONS,
 COMBINED with TRAINING for PHYSICAL FITNESS

NOTE.—Gymnastics, Drill, Physical Training, and Military Riding form integral parts of the curriculum. Gymnastic Classes are held daily, and every Army Candidate is taught Military Riding. Attention is invited to the following results, which are a practical test of the efficiency of a system combining mental with physical education.

WITH EIGHTEEN CANDIDATES PER TERM.

5th Infantry—A. Thompson... .. 9,814
direct ; was specially prepared for a Commission in the Indian S

14th—W. H. Chadwick ... 7,634 First trial direct after two months' special preparation.
First in Geometrical Drawing, Second in Mathematics I, (2,771 out of 3,000), Second in Mathematics II, (1,750 out of 2,000), and Second in Freehand Drawing.

20th—P. H. Evans 9,748
First trial after failure elsewhere; put on 2,976 marks in three months

SANDHURST, DECEMBER, 1901.

MILITIA COMPETITIVE, SEPTEMBER, 1901. (New Regulations.)

INFANTRY.

—H. N. Jones ... 12,501	—J. B. Matthews-Donaldson ... 10,529	—H. Pigé Leschallas ... 8,398
-------------------------	--------------------------------------	-------------------------------

100th Infantry—*A. K. Robertson	...	5,744		W.I.R.—*G. F. Archibald	5,515
Infantry Cadetship—*D. I. Macpherson	4,832

MILITIA COMPETITIVE. MARCH, 1901. (New Regulations.)

WOOLWICH, DECEMBER, 1900.

58th—W. James	7,219	First trial direct at the age of sixteen.
---------------	-----	-----	-------	---

SANDHURST, DECEMBER, 1900,
FOUR PREPARED—FOUR SUCCESSFUL.

MILITIA COMPETITIVE, SEPTEMBER, 1900. (New Regulations.)			
24th Infantry—H. T. Thornhill.....	13.815	57th Infantry—J. D. Furber.....	11.553

57th.—H. I. Mitchell 8 900 | 118th.—C. W. Smeed 7 167

⁵Was educated at Onslow Hall from the age of 14 to 16, and passed out of Woolwich for Royal Engineers at the age of 18.

Hon. Queen's Cadetship—R. S. Hart ...	6,197	First trial direct at the age of seventeen.
---------------------------------------	-------	---

11th—C. W. T. Feilmann ...	7,527	First trial, and the only Candidate prepared.	First in German.
----------------------------	-------	---	------------------

63rd—W. C. Cripps	7,200	The only Candidate prepared.
--------------------------	-------	------------------------------

TEN PREPARED—TEN SUCCESSFUL.

N.B.—During the last eight years every Candidate for a Commission in the Indian Staff Corps, who failed to pass from elsewhere, has been successful after only one Term's final preparation at Onslow Hall.

For ILLUSTRATED PROSPECTUS, &c., apply to

Candidates have been transferred to Onslow Hall from Eton, Harrow, Rugby, Winchester, Marlborough, Haileybury, Wellington, Charterhouse, Cheltenham, Clifton, Bedford, Berkhamsted, Dulwich, Felsted, Fettes, Radley, Repton, St. Paul's, Portsmouth, Sherborne, Stonyhurst, Tonbridge, Uppingham, Bath, Brighton, and other Colleges.

ROYAL UNITED SERVICE INSTITUTION.

PRESIDENT.

Field-Marshal H.R.H. The DUKE OF CAMBRIDGE, K.G., &c.
Hon. Colonel-in-Chief to the Forces.

VICE-PRESIDENTS.

Admiral Rt. Hon. Sir J. C. DALRYMPLE HAY, Bart., G.C.B., D.C.L., F.R.S.
General Sir F. C. A. STEPHENSON, G.C.B., Constable of the Tower.
Admiral Sir ERASMUS OMMANNBY, K.C.B., LL.D., F.R.S.
General Lord CHELMSFORD, G.C.B.
Admiral Sir E. G. FANSHAWE, G.C.B., Admiral H. BOYS, F.R.G.S.
Field-Marshal Sir J. LINTON A. SIMMONS, G.C.B., G.C.M.G., R.E.
Lieut.-Colonel T. H. BAYLIS (K.C.), v.d., late 18th Middlesex V.R.C.

CHAIRMAN.

Admiral Sir NATHANIEL BOWDEN-SMITH, K.C.B.

VICE-CHAIRMAN.

Major-General JOHN BARTON STERLING, late Coldstream Guards

MEMBERS OF THE COUNCIL.

Major W. ANSTRUTHER-THOMSON, F.S.A., Royal Horse Guards.
Commander G. A. BALLARD, R.N., Admiralty (Gold Medallist, R.U.S.I.).
Colonel S. G. BIRD, C.B., 1st Middlesex Vol. R.C.
Major J. H. BORN, C.M.G., R.M.A., D.A.A.G., Royal Marines, Extra Equerry to H.R.H. The Prince of Wales.
Lieut.-General Sir W. F. BUTLER, K.C.B., Commanding Western District.
Commander W. F. CADORNE, C.B., Royal Naval Reserve.
Colonel T. S. CAVE, 1st Vol. Bn. Hampshire Regiment.
Major-General Lord CHILCHESTER.
Sir G. H. CHUBB, Bart., late Captain 4th Vol. Bn. East Surrey Regiment.
Admiral of the Fleet The Earl of Clanwilliam, G.C.B., K.C.M.G.
Major G. T. FORESTIER-WALKER, R.A., p.c., D.A.Q.M.G. for Militia & Intelligence.
Colonel G. F. GUYON, Commanding 7th and 57th Regimental Districts.
Colonel Lonsdale A. HALE, late R.E.
Colonel Sir W. A. BAILEY HAMILTON, K.C.M.G., C.B., Lothians and Berwickshire Imperial Yeomanry.
Surgeon-General J. JAMISON, M.D., C.B., Hon. Surgeon to the King.
Major-General Sir G. H. MARSHALL, K.C.B., commanding R.A., 1st Army Corps, Aldershot District.

Major-General Sir J. F. MAURICE, K.C.B., R.A., p.c.
Captain H. J. MAY, C.B., R.N., Captain of the Royal Naval College, Greenwich.
Vice-Admiral Sir GERARD H. U. NOEL, K.C.B., K.C.M.G., Admiral Superintendent of Naval Reserves (Gold Medallist R.U.S.I.).
Colonel Lord RAGLAN, Royal Monmouthshire R.E. (Militia).
Colonel P. C. ROMER, C.M.G., 6th Bn. The Lancashire Fusiliers.
Admiral Lord CHARLES T. M. D. SCOTT, K.C.B., Com-in-Chief, Plymouth.

Secretary.

Lieut.-Colonel R. M. HOLDEN, 4th Bn. The Cameronians (Scottish Rifles), A.D.C. to the Inspector-General of Auxiliary Forces.

Editor and Librarian.

Captain H. J. G. GARRETT, R.N. (retired).

Assistant Editor and Librarian.

Major C. H. WYLLY, late 1st Bn. South Staffordshire Regiment.

The undermentioned can become members by intimating their wish to the Secretary, and either forwarding to him their subscription, or giving him a written authority on their bankers or agents for its payments:—Commissioned officers of the Royal Navy, Regular Army, Royal Marines, Militia, Indian and Colonial Naval and Military Forces, Imperial Yeomanry, Royal Naval Reserve, Volunteer Corps, and Cadet Battalions and Corps, as published in the Official Navy and Army Lists, together with retired officers of the same whose names are retained in the Navy or Army Lists, and Naval Cadets and Cadets of the Royal Military Academy, Woolwich, and Royal Military College, Sandhurst, on the recommendation of their commanding officers.

Officers retired from the various Services enumerated above whose names do not appear in the Navy or Army Lists, are eligible for election by ballot on the recommendation, on personal knowledge, of two members of the Institution.

The terms of subscription are:—

Annual. £1 1s. 0d. entrance; and £1 1s. 0d. annual, payable on the 1st January each year.

Life. £15, payable in one sum.

Life. £15 15s., payable in three instalments of Five Guineas each; the first on joining the Institution, the others on the 1st January of each of the succeeding two years.

Members joining after the 1st October in any year are not called upon for any subscription the following year.

An extra payment of Ten Shillings entitles a member in the United Kingdom to the loan of Four Volumes at a time from the Library for a period of twelve months from the date of the subscription.

When a member desires to pay his subscription through his banker or agent, he should send to the Secretary a written authority as follows:

To (Banker or Agents)

On receipt of this order please pay to Secretary, Royal United Service Institution, or order, my subscription to that Institution (according to the terms above).

Name in full.

Rank, Ship, or Regiment.

Address to which Journals and other communications should be sent.

The name of any member who fails to pay his annual subscription for two years is removed from the List of Members, but the member may be re-admitted as a new member on the usual terms.

Members of the United Service Institution of India on leave to the United Kingdom, and officers of the Colonial Naval and Military Forces who are temporarily in this country on duty, can become temporary members, and make use of the Institution on payment of Five Shillings per six months.

The Institution contains the best professional Library in the United Kingdom; an excellent collection of Maps and Charts; Reading and Smoking Rooms provided with the leading papers, periodicals, and writing materials, and where tea and coffee, &c., can be obtained; an interesting Museum; and a Theatre in which lectures upon professional subjects, followed by discussion, are frequently given.

The Journal, published monthly, is sent post free to all members. It contains the lectures given in the Theatre, articles on professional subjects, naval and military notes, book notices, &c.

CHANGES OF ADDRESS OR RANK.

The attention of Members is called to the necessity for communicating any change of address or change of rank to the Secretary.

Such changes should be notified not later than the 10th of each month; if this is not done, Members will themselves be responsible if their Journals fail to reach them through being wrongly addressed.

R

“

au
pr
w

ca
ti
of
“

ag
at
ac
E
se
w
at

F

THE JOURNAL OF THE ROYAL UNITED SERVICE INSTITUTION.

VOL. XLVI.

SEPTEMBER, 1902.

No. 295.

[Authors alone are responsible for the contents of their respective Papers.]

THIRD PRIZE ESSAY.

(HONOURABLY MENTIONED.)

Subject:—

“WHAT SHOULD BE THE DISPOSITION OF THE MATÉRIEL AND PERSONNEL OF THE BRITISH NAVY IN TIME OF PEACE, AND HOW CAN THE PEACE STRENGTH BE MOST RAPIDLY EXPANDED TO WAR STRENGTH?”

By Lieutenant TRISTAN DANNREUTHER, R.N.

—
“*Mihi cura futuri.*”
—

THE MATÉRIEL.

THE twentieth century has commenced under very favourable auspices for the British nation. We start with a magnificent fleet, practically built during the last decade. The question is, What shall we do with it and how shall we man it?

Each question is in itself so difficult of solution, that at the best we can only hope to reach a reasonable compromise suitable to our means in time of peace, whilst striving towards the attainment of our ideals in time of war. The late Cardinal Manning put the whole matter in a nutshell:—“The British Navy,” he said, “is a great instrument of peace. It is not an aggressive force. Its squadrons afloat are not intended to be supreme at any and every moment in every sea, but merely to be the nucleus and advance guard of the reserves at home. In the defence of a world-wide Empire reliance must be placed on the mobility of its naval forces. The sea is dotted with concentrated masses of ships, in order that on the whisper of trouble they may be swiftly moved into closer combinations at the desired point.”

That is to say, in time of peace the general disposition of the British Fleet by its division into squadrons and grouping into stations should be

so arranged that on the outbreak of war a force will be found on the spot sufficiently large to engage such ships as our prospective enemies keep in permanent commission in the vicinity, with a fair prospect of success. And at the same time we should so organise our reserves that they can concentrate in a preponderating force within the area of hostilities; if possible in a shorter time than it would reasonably take our probable enemies to do the like.

To carry such a principle into effect, it is first of all necessary to consider by how much our forces should exceed those of our enemies to give our admirals a fair chance of striking a crushing blow.

In all artificial warfare, such as our annual manœuvres, if a force of ten battle-ships brought a force of eight similar ships to action, the umpires would undoubtedly award the victory to the side with the ten ships. History, however, teaches us that as often as not when the differences have been so small the personal element, rather than the *matériel*, is the principal factor to be considered; and it stands to reason that in actual warfare a courageous admiral with eight good ships would not decline an action against ten, if the numerical point happened to be the only one to be considered at the time. On the other hand, too great a preponderance is often a source of weakness, as the larger the force the more dependent it is upon its line of communications, owing to the constant stream of supplies which a large force requires, and in action a large squadron is too unwieldy to be used as a whole effectively.

A force exactly double that of the enemy possesses a crushing preponderance, and at the same time possesses this great advantage: that it is possible for the admiral to divide his forces into two, each part of which can afford to stand an attack by the hostile fleet. It is, however, a recognised axiom that a combination is superior to divided forces, except in very exceptional cases, such as blockading ports, etc.

If the idea of division be dismissed, a proportion of three to two appears to be sufficient to ensure a decisive action, and has the merit of setting free a fair proportion to guard the line of communications, to be available to replace casualties in the fighting squadron after an action, and for acting as reliefs during the period of hostilities until such action has been fought.

DISPOSITION OF MATÉRIEL.

There are only two methods which suggest themselves on the basis of which the disposition of our Fleet can be considered in detail. The first is to collect all the information available as to the disposition of foreign fleets, and with this material devise a method which will dispose of our own forces to the best advantage. The second is to accept the Admiralty standard of force required in various parts of our Empire, and

see how we can best dispose of our ships so as to provide squadrons of the requisite strength to guard our most vulnerable points against our probable enemies.

It would be a futile effort on the part of anyone not connected with our Naval Intelligence Department to attempt to gauge the real effective fighting value of our possible opponents' forces and their offensive designs in the event of war; and even if it were not so, it would be impolitic in the highest degree to so expose our knowledge, or want of knowledge, in these matters to the publicity which a paper of this nature is subjected to. No one can be in a better position to gauge our actual requirements on different stations than the Lords of the Admiralty, and therefore we cannot do better than accept the relative proportions which our squadrons bear to one another at the present moment as the best that human foresight can devise. We should therefore turn our attention to the composition of our squadrons and see whether a better distribution of ships to form those squadrons can be suggested, with the *personnel* and *matériel* at our disposal.

As an outline for the disposition of our Fleet, we require a nucleus of ships within reach of every vulnerable point in our Empire. The general position of these forces should be so disposed that each group is in a position to assist its nearest neighbour on either side on the outbreak of hostilities. The groups of ships themselves should be more or less equivalent to the first line of offence of our probable enemies on the spot and such ships as are required to develop the individual groups into complete homogeneous squadrons should, in time of peace, be kept at such of our fortified base ports as are within reasonable distances of the rallying points.

Unfortunately, many of our foreign base ports are still unfortified, or so badly situated as to be of little use to assist concentration. In these cases our policy should be to divide one complete squadron on a war footing into halves, each half of which should form the peace squadron for an adjoining station.

BASE PORTS.

Under modern conditions of naval warfare, a squadron at sea cannot be regarded as an effective force unless it has a friendly base port within reach to which it can retire to coal, etc., or for repairs after an engagement. Before discussing the disposition of our ships, in detail, we will, therefore, consider the important question of the selection and fitting out of our naval bases.

"Like the land," says Captain Mahan, "the sea as a military field has its important centres, and it is not controlled by spreading your force, whatever its composition, like butter spread over bread, but by

occupying the centres with aggregated forces—ready to act in masses, in various directions from the centres.”

On a foreign station a squadron should have one, and only one, secure port as a base. The proper fitting out of a base is a very expensive affair, and if it is not impregnable and were to fall in time of war it would be an irreparable loss and might conceivably be the cause of ultimate defeat. A second base port therefore, unless both can be made impregnable, is a source of weakness rather than strength, for it becomes necessary to weaken your fighting forces to defend two points with a line of communications to each. With one base it is easy to keep between the enemy and your base and so make use of it even if it is not impregnable, thus allowing of individual ships being detached for replenishing; to attempt to use two vulnerable bases at the same time is impracticable, if not impossible.

The entrance to a base port should be fortified and mined, with a self-contained garrison whose commandant should be assisted by a naval adviser. It should be fortified with modern guns of the types used in the squadron, and should have ordnance stores complete with interchangeable ammunition and spare parts for both services. It should be provided with a division of destroyers to prevent a too close investment and secure the harbour against torpedo-boats. It should have accommodation for the whole squadron on a war footing and coaling plant on the same scale. It should contain a repairing yard and a dock sufficiently large to take any damaged ship in the squadron at all times of tide. It should contain a victualling yard, sufficiently well stocked to supply the fleet and allow the garrison to stand a siege, with a hospital and clothing depôt attached.

The ideal base port should have a fertile hinterland, with railway communication to a coal mine, and should be independent of the sea for its supplies and material. It should, if possible, be at a marine commercial centre, and contain a Naval Reserve training depôt to augment the *personnel* of the fleet in time of war. It should be geographically well situated, so that a bombardment from seaward would do little damage, and should be in telegraphic communication with all important points in the neighbourhood and with the Admiralty.

Each base should be provided with at least two fleet auxiliaries, specially constructed ships not necessarily manned by service crews. These ships should be adapted to form mobile temporary bases. They should have a speed of 18 knots, so as to be capable of cruising with the fleet, and should keep stores, ammunition, mines, and victuals, for issue as required. They should be fitted with powerful distilling apparatus, salvage appliances, and have their bunkers devised to facilitate the

extraction of coal if required. When empty they should be capable of returning as hospital-ships to the base ports and there replenish.

Auxiliary ships should also be fitted for picking up telegraph cables, and should carry sufficient cable to lay a short line. A light armament should be provided to guard against an attack by torpedo-boats and destroyers.

It is also necessary to provide colliers capable of keeping up with the fleet at their normal cruising speed (maximum 15 knots), so as to facilitate coaling at temporary bases in the enemy's country.

HOME BASES.

Bearing the above in view, we may now proceed to review our possessions and see how far our dockyards are suitable as base ports.

For strategic purposes our three principal yards—Portsmouth, Plymouth, and Chatham—are well situated for a war in the Channel, Atlantic, or Baltic, as has been explained scores of times by naval strategists. In this respect we can congratulate ourselves on having a distinct advantage over our adversaries; but at the same time the latter-day tendency to make subsidiary permanent bases, such as Portland, Dover, Falmouth, etc., is to be deprecated. The general want of adequate accommodation for our reserve of ships in the impregnable ports is partly answerable for this state of affairs, which should be remedied as far as it can be by dredging the backwaters of these ports.

Fortifications are of course required at our building yards, the ends of our trade routes, coaling stations, etc.; but as a general rule the smaller ports should not be fortified nor provided with docks or reserve stores except a *small* quantity of coal, and a railway to replenish the supply when necessary from a secure point inland. As bases for destroyers and temporary resting places for our battle squadrons these subsidiary bases will be very useful, but the ports themselves in the absence of the fleet should contain nothing that it would be necessary to defend or the loss of which would be of vital importance. Fortifications are a useless expense, except such light batteries as are necessary to protect a mine field whilst the fleet is coaling or replenishing her stores from fleet auxiliaries.

The base port is the only place of retreat to repair damages after an action; but before action, and whilst watching, an outpost or secondary base is required if the base port is too far distant and entails a long line of communications.

At the east end of the Channel, Sheerness is our outpost; but at the west end we have none fit to act as the headquarters for the protection of the trade routes. For this purpose, and other reasons which follow, we

require an impregnable port on the south coast of Ireland. The choice lies between Queenstown and Berehaven. In some respects the first is the better, for it is a commercial centre, and has good inland communications; but the foreshore is devoid of suitable ground for storehouses, and the harbour is not large enough to berth so large a fleet as the junction of our Channel and Mediterranean Squadrons would create, nor even the combination of the Channel and Coast-Guard Squadrons. So we must abandon the idea of fortifying Queenstown as our outpost in favour of Berehaven—an excellent, commodious harbour with virgin land which can be bought for a mere song, and completely shut in from the open sea. We should devote our energies to fortifying this port and connecting it by a railway with the more populous districts of Ireland to ensure a supply of victuals and of labour to assist in coaling in time of war, for an outpost should be independent of a sea line of communications. Berehaven should be to Plymouth what Trincomalee is to Bombay—a fortified supply station; not a dock or repairing station.

Berehaven would be an ideal secondary base in case of war with France, for the French have built an enormous flotilla of torpedo-boats, and maintain many of them in their northern ports with no other possible object than to attempt to destroy ships lying in our dockyard ports. Berehaven is out of the radius of action of the French torpedo-boats, and even their *torpilleurs de haute mer* would be afraid to venture so far in the winter months, on account of the heavy weather which is usually experienced in that neighbourhood, so that here a British Fleet would have little to fear from torpedo-boat raids whilst coaling or taking in stores.

The mere fact of our possessing such a fortified port in that neighbourhood, from which our ocean "corsairs" could work, would also annihilate any hopes which our neighbours may still cherish of the possibility of an invasion of Ireland.

FOREIGN BASES.

Let us now consider our bases abroad. In the Mediterranean we have two fortified dockyards, neither of which is capable of being enlarged to suit the requirements of our enormous fleet in those waters, and neither of which has any internal artery for the supply of victuals and coal in time of war. In these waters we are unfortunately obliged to keep up two establishments in order to meet the requirements of the fleet—a serious disadvantage in time of war.

Malta, in particular, is of doubtful utility as a primary base, for in time of war the first duty of the fleet in those waters will probably be, not to defend the Mediterranean, but to drive the enemy out of it and guard the door, so that Gibraltar is undoubtedly the best strategical point for

our base, particularly as it could also be made use of by the Channel Fleet, whether the latter were combined or acting independently of the Mediterranean Squadron. Malta only comes into prominence as a naval base in time of war when the field of operations is restricted to the eastern basin of the Mediterranean, such as a blockade of the Dardanelles or an attack on Egypt.

Our best policy is to accept Gibraltar, however inadequate, as our primary base port in these waters and to secure Malta and Egypt by closing the door. We should in war-time undoubtedly declare the Suez Canal neutral, for it is of more importance to keep it open to our men-of-war than to close it to our enemies. If an enemy's force did make use of the Canal, our policy should be to concentrate the East Indies Squadron and bring them to action in the Gulf of Suez, with Perim as our temporary base—a locality in which the enemy would be without a port to effect repairs and re-fit in security.

Next to the Mediterranean, our most important squadron abroad is in China, and here also we have two bases: Hong-Kong and Wei-hai-Wei. These ports are a long way apart, and neither is sufficiently garrisoned or can in any way be considered impregnable. Of the two, Hong-Kong occupies the better geographical position, and is the better able to support itself. The policy of attempting to improve or fortify Wei-hai-Wei is indefensible from a strategic point of view, and the more it is made use of as a repository the better bait it will become in time of war to our only possible enemies in those waters. As a primary base port it should be abandoned,¹ but as a temporary base, such as Portland is to Portsmouth, it will doubtless prove to be of value. It is a secure harbour fit for coaling, with friendly labour available, but all its stores should be kept in fleet auxiliaries, so that the port can be abandoned at a moment's notice, and leave nothing for the enemy to prey upon, should he make a descent upon it. The garrison at Wei-hai-Wei should be transferred bodily to Hong-Kong, and every effort made to improve the defensibility of the latter. The barracks at Wei-hai-Wei should be converted into a naval hospital.

The same argument applies to all our smaller squadrons. Each should be provided with one, and only one, base, and no expense should be spared in the first instance to make these ports impregnable and then to provide them with storehouses, docks, etc., to meet the requirements of the fleet. Halifax should be the North American base, as it is blessed with a fertile country behind it; similarly, Bombay should be the base port for the East Indies; Sydney for Australia;

¹ Essay was written in October, 1901. This policy has since been carried into effect.—T. D.

Esquimalt for the Pacific; Cape of Good Hope for East and West Africa; Falkland Islands as a temporary base for the south-east coast of America, to be abandoned if the ships are required to combine with the North America or Pacific Squadrons.

As regards temporary bases on foreign stations, it is suggested that all coaling ports be also equipped with victualling stores and ammunition, so that if one of these commodities could be obtained the squadron could, when coaling, also replenish the others. This can be done with very little risk to ourselves, for, on war being declared, it is practically certain that coal will be considered a contraband of war, just as much as ammunition, and the greater part of our spare ammunition would be of very little use to our enemies, owing to the peculiar calibres of the ordnance adopted by foreign nations.

In addition to the above, oil for engines, water tanks, and a small hospital would be a great boon if kept by our coal contractors; and, at the same time, would not benefit our enemies to a dangerous extent.

In time of peace the fleet auxiliaries, when available, might be usefully employed replenishing the coaling stations with these stores from the main base. Vessels like our new "Assistance" should be employed to carry out duties similar to those performed by the "Wye," "Tyne," and "Humber."

THE COMPOSITION OF A SQUADRON.

Naval bases having been provided at convenient points, let us now consider the composition of the squadrons depending upon them.

A naval war bears some similitude to a game of football. Unless the goal is well protected, the efforts of the team are useless—thus the root of the whole matter before us is the provision and protection of a well supplied base. Next to that, the captain of the team's first care is so to dispose his men that any one part can be readily supported, the light runners to the front, and the sturdy heavy-weights to meet the main attack in rear. When a football team has played together for some time and is well organised, it has an immense advantage over a scratch team, even though individually the latter may be better players than the former. So it is with ships: squadrons should be well organised and of a homogeneous character. A uniform grouping of ships is what is required.

This fact is often lost sight of, particularly in our smaller squadrons. Suppose a prospective enemy increases his permanent force in certain waters by a second-class cruiser, the Admiralty generally retaliate by doing the like; suppose a second prospective enemy increases his force in the same waters by a first-class armoured cruiser, the Admiralty again do the like, so that on paper the balance of power in those waters

appears to be perfect, but in practice it too often leads to a squadron becoming a mere collection of sample ships, all of different dates and build, to which no definite tactical or even strategic policy can be applied. In effect, the commander-in-chief on the station is told to make the best use of whatever he happens to find under his command. For example, at the present moment on the East Indies station in a total of ten ships kept in commission we find no less than eight different types represented.

Let us for a moment suppose that we had no squadrons abroad whatever, and that all foreign men-of-war were situated as they are. Ask each commander-in-chief abroad what force he would like picked from the whole Navy to meet a possible combination on his particular station. The answers received would probably be very different from what we have in reality. It is of course probable that many admirals would ask for the same ships, but if they were allowed to pick and choose in the order of the importance of their stations and with regard to the small *personnel* available, even then many radical changes would inevitably be proposed for the sake of homogeneity in the forces alone.

BATTLE SQUADRONS.

Our first care in organising the fleet should be to divide our battle-ships into effective squadrons and then complete those squadrons by such accessory ships (*i.e.*, cruisers, etc.) as are required for efficiency.

What should be the size of a battle squadron? Tacticians are unanimous in their declaration that six is the irreducible minimum and twelve the convenient maximum. The German Admiralty, from which we have many lessons to learn as regards careful and painstaking organisation, have decided that with the means at their disposal a squadron should consist of two divisions of three ships each, with a flag-ship (similar in all respects to the others) out of the line.

For tactical purposes, the battle squadron should not be divided into more than two divisions, and the total number of ships should never exceed twelve, as the mobility of the whole is diminished in proportion to the prolongation of the fleet when fighting in single line—the best disposition of a fleet for a battle. If a larger fleet is required it would be better to divide it into two separate squadrons, acting in touch with one another, but being manœuvred against the common foe as separate units for the sake of mobility and to prevent an action developing into a *mêlée*. The handiest squadron, according to our best authorities, consists of eight battle-ships divided into two divisions of four, so that unless the force of the enemy is definitely known, eight should be the accepted number, with power to reinforce from the reserve if similar ships are available.

CRUISERS.

The battle squadron, whatever its size may be, requires first of all a screen of cruisers. This is the rôle of the second-class cruiser, as these ships possess excellent sea-going qualities. Although their duties require them to avoid action if possible, yet when acting in combination they are capable of attacking a first-class cruiser, and if overpowered have always the battle-squadron to fall back upon to avoid capture. For this service, each battle-squadron requires at least eight second-class cruisers to act in four pairs, placed so as to be just within the long distance signalling range of the battle-squadron when scouting.

LINKING SHIPS.

Next, the admiral will require two or three link, or intelligence, ships to keep him in touch with the main body of his cruisers. It is their business to avoid an action and carry dispatches and information, so that in their case armament is not so great a necessity as speed. If destroyers possessed better sea-going qualities, they would be admirably suited to this work, owing to their invisibility and great speed. As however, they are unable to keep the sea in all weathers, this becomes the *métier* of the third-class cruiser.

LOOK-OUTS.

A few years ago the principal use to which our cruisers were put, in addition to screening the battle-squadron from the enemy, was to send them either singly or in couples as look-outs to places where the enemy might be sighted to spy out his force and intentions, trusting solely to their speed to avoid an action and regain the fleet or the base from which they started.

Nowadays, cruisers of all classes have an equal speed, or, if anything, the larger have the advantage, so that if this system were still in vogue it would inevitably lead to our cruisers being captured in detail by groups of the enemy's cruisers, and the admiral would have to rely entirely on such negative evidence as he received from such of his cruisers as had been lucky enough to escape observation.

This matter of equal speed makes it imperative that cruisers employed away from the support of the battle squadron or a base port should be of the first class, in order to avoid capture and bring smaller cruisers to action at a disadvantage.

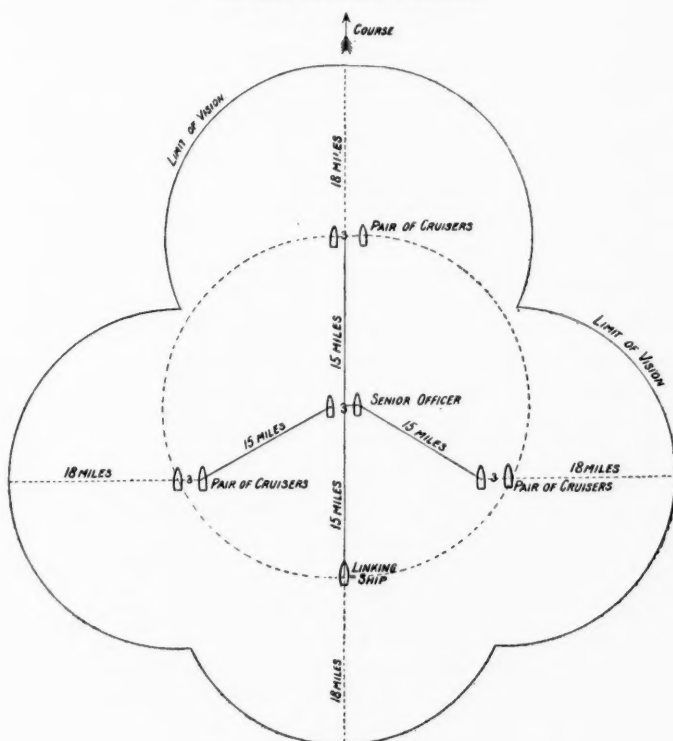
Not only should the look-outs be necessarily cruisers of the first class, but they should cruise as a squadron, of which at least a nucleus should invariably form a rendezvous, to allow of rapid concentration in case a pair found themselves overmatched, and also to form a bureau for

the collection of information for the linking (third-class) cruisers to carry to the flag-ship or a signal station.

CRUISER SQUADRON.

A squadron of eight first-class cruisers under the command of a rear-admiral is required for this service, and is considered to be the least number which can be disposed of in pairs to search a large area and yet be capable of rapid concentration. If placed fifteen miles apart, and disposed as shown in the accompanying sketch, an area of no less than 4,000 square miles can be watched on a fine day, and at one hour's notice the whole can combine to strike a decisive blow against the enemy's forces, the battle squadron alone excepted.

CRUISER SQUADRON DIAGRAM.



SCALE, 10 SEA MILES = 1 INCH.

Radius of Vision	...	...	...	...	...	18 miles.
Breadth of Front	...	...	...	...	...	71 "

Area of Vision over 4,000 square miles.

The rôle of the cruiser squadron is full of magnificent possibilities. It has the speed to evade a battle squadron after a reconnaissance in force. It has the power to push in the enemy's cruiser screen of scouts. It can paralyse the enemy's battle squadron by cruising between it and its base so as to prevent individual ships advancing to reinforce or returning for repairs or to replenish. It has the power to protect convoys

NOTE ON CRUISER SQUADRON DIAGRAM.

The distance which ships can afford to be apart in broad daylight whilst on the look-out, depends upon the distance at which ships can be recognised by their rig. A vessel of the "Diadem" class, to be in touch with another, in fine weather only requires to show her masts and the tops of her four funnels above the horizon to be unmistakable when passing through other shipping. The proper distance apart of each pair of look-outs in fine weather may therefore be considered as fifteen to eighteen miles.

When on the look-out, the use of wireless telegraphy is a mistake on the part of cruisers. The apparatus is necessary to a look-out or scout as a finder and not as a transmitter. The mere fact of receiving unknown calls is sufficient evidence that an enemy is in the vicinity, whereas making a reply or interrupting the signal only betrays your own presence.

There are only three distant signals which look-outs require to make, they are :—

1. Enemy in sight—force weak—our pair of cruisers is sufficient to crush it.
2. Enemy in sight—force strong—our pair of cruisers require reinforcement to attack.
3. Enemy's battle squadron in sight—we must concentrate and avoid an action.

The disposition as shown in the diagram is so arranged that any pair can join the senior officer's pair in the centre in one hour. Each ship has another at three miles distance, *i.e.*, to act as a support within easy signalling distance.

In cruising formation each cruiser has another on its *beam* three miles distant.

Distant signal No. 1 is made by the pair altering course towards the enemy and closing on one another in line abreast. The remainder alter course to keep touch with the engaged pair, preserving the order of the fleet, the centre pair forming close order abreast of one another—which is in itself a signal to all the remainder that a small force is about to be engaged, but that assistance is not necessary.

Should the enemy become too powerful for the pair, they form single-line ahead in close order. This signal is repeated by the centre pair also forming line ahead and heading in the direction of the enemy, and the centre pair's motions are followed by the remainder, all ships concentrating on the enemy.

If a battle squadron is sighted, the pair should immediately close on one another, and head towards the centre pair. The centre pair should close on one another and then stop, heading opposite ways as a sign to the whole squadron to raise steam for full speed and rally round their leader.

Any other news should be transmitted by one cruiser remaining on its beat and the second closing by herself to within masthead semaphore signalling distance of the senior officer.

To avoid waste of time, all reports should be made to the senior officer in the centre pair, who should always have his "link ship" within call and should attract the link ship's attention by one of the centre pair dropping down on him.

Of course at night time it would be impossible to cruise at the distance suggested, and the squadron would close to within signalling distance by their arc flashing lamps.

and to clear the trade routes of corsairs. It can bring the enemy's cruiser squadron to action and by at least crippling it, if not defeating it, ensure the safety of our own supplies and lines of communication. It can easily be divided—a pair or two at a time—to watch the enemy's ports or to return to replenish with coal, without disorganising its effectiveness as a whole.

Such a squadron is almost as important as the battle squadron itself, and is sorely needed to complete our Mediterranean and Channel Squadrons. In time of peace, these squadrons would prove to be excellent training grounds for our young seamen and stokers, as in modern first-class cruisers great numbers can be carried without overcrowding, and as long as the engine-room staff is well manned, the fact of the remainder being more or less untrained is not so great a disadvantage as it would be in a battle-ship.

Each cruiser squadron should be commanded by a junior flag officer who should keep his command together in time of peace, and use every opportunity to instruct and exercise his force in cruiser tactics of every description, always keeping his line of communication to his commander-in-chief intact by means of his linking ships, which as well as all the first-class cruisers should be provided with wireless telegraphy.

DESTROYERS.

Each battle squadron and cruiser squadron should have a group of destroyers at its disposal. The destroyers should always work in divisions of six each, as that number is the least with which success can be hoped for in a torpedo attack.

And since destroyers are constantly in want of small repairs, independently of the incessant coaling, etc., it is suggested that each crew should be permanently attached to two sister destroyers, so that on arrival at the base they can be at once transferred to their link destroyers and leave the others to be coaled and repaired by local labour—thus at the same time forming a reserve force to protect the port if required.

The duties of a destroyer division are very varied. They are a defence against torpedo attack, both day and night, in a harbour. In fine weather, as far as their radius of action will allow, they are useful as scouts and messengers even in daylight, for no large ship would waste time hunting them down. They are useful to defend temporary bases whilst in use, and to form the inner *cordon* of a blockade to a port where submarine boats are employed.

And apart from their actual power of offence, they are a standing menace to the enemy, for the whereabouts of the destroyer divisions, especially at night, must always be a matter of conjecture, owing to their great mobility.

For these services the more that are available the better, but the minimum should be considered a division to each squadron with an equal number in reserve; that is, twelve permanently in commission with twelve in reserve at the base port; and every care should be taken to so select the individual destroyers that their powers are equal and their fittings interchangeable with their sister boats in reserve.

SUBMARINE BOATS.

It is also suggested that a submarine boat should form part of each fleet, to be kept at the base port as an aid to prevent too close an investment in the absence of the fleet, but primarily as a weapon of offence. The true rôle of a submarine boat will probably prove to be that of a countermining launch, that is, to act as a tug just below the surface of the water, to tow a line of countermines (also just below the surface) into position and drop them to clear a passage through an enemy's mine field for our ships to make a raid on the enemy's base.

Raids of this kind on the enemy's base ports will probably become a necessity after the first month or so of hostilities, to prevent repairs being effected to crippled ships which have managed to escape capture, and to destroy new *matériel* and supplies. It might also be possible to lock a hostile squadron out of its own base by employing submarine boats under cover of darkness to lay a *cordon* of mines across the entrance of an enemy's port.

When the necessary auxiliary ships have been provided for, and the torpedo-boats are mobilised as a harbour defence, with the torpedo gun-boats detailed for the Examination Service, we have a complete fleet on a war footing.

DISPOSITION OF SQUADRONS.

It is now necessary to consider our probable adversaries in each and every quarter of the globe, and re-adjust the numbers in the proportions suggested, to give us in time of war a crushing preponderance either with one complete squadron or a combination of two. In the latter case, the aggregate number of cruisers can be reduced, if the numbers opposed to us will allow of it and the field of operations is more or less restricted.

It should be borne in mind when considering this question that, especially with cruisers, the number of breakdowns in war will probably be much greater than those we experience at manœuvres, even if cruisers are not brought to action. At each base port a reasonable supply of reserve ships, sister ships to those in commission, should always be kept as relief ships ready for instant mobilisation, preferably by transferring the crew of the disabled ship bodily. It is recommended that at least one cruiser of each class employed afloat be kept apart at the base port of the squadron for this purpose alone, that is to say, to be kept

in the A Division Fleet Reserve, but not to be reckoned as a ship to commission on the outbreak of war, when changing from a peace to a war footing, unless the *personnel* can be spared to man these ships as well as others more important.

FOREIGN STATIONS.

Let us now consider the actual requirements for peace and war on each of our foreign stations. "The sea is dotted with concentrated masses of ships in order that on the whisper of trouble they may be swiftly moved into closer combinations at the desired point." This is the point of view from which we should regard all our foreign squadrons. At present, each foreign station is bounded by artificial frontiers, beyond which the ships of a squadron are forbidden to tread. The boundaries should be regarded merely as limits to the "sphere of influence" of the commander-in-chief, and each year every squadron should combine for tactical exercise with its nearest neighbours. In this respect the Admiralty have just established an excellent precedent by combining the Channel Squadron with the Mediterranean for a short cruise. These combinations not only accustom the commanders of the squadrons to act in concert, but also help to test the individual resources of the various stations to deal with large numbers of ships in time of peace as they would inevitably have to arrange for in time of war.

For this reason, our aggregate forces abroad should be linked together as follows:—

Mediterranean Squadron linked with Channel Squadron.

China with Australia and Pacific.

West Indies with S.E. Coast of America.

East Indies with Cape Squadron and Red Sea Division.

GROUPING OF SHIPS.

As regards the organisation of our battle squadrons, have we not something to learn from other nations? For example, observe the young German Navy just budding into existence. They have a great advantage over us, and are making the best use of it. They have waited until the types of modern ships have been practically reduced to the modern battle-ship, cruiser, and the destroyer, so that in building and commissioning their battle-ships they can put into practice what should be our ideal of a homogeneous fleet. The Germans have decided for the sake of economy that a squadron shall consist of six ships. To attain this object, they are building all their ships in groups of fours, each group consisting of

four ships identical in every detail, three of which are intended to form a division with the fourth as a relief, with all stores on board.¹

Each group belongs to the same port, where it has a separate lay-apart store containing all the stores which the group might reasonably require in time of war, and so arranged that they can be placed on board with the least possible delay. Their dockyards are models of organised neatness and preparation, and yet, when one comes to compare the administration by which this is brought about with our own, the difference is hardly perceptible, save that the entire control down to the smallest detail is placed in the hands of the executive *personnel* of the fleet, instead of dockyard civilians—a principle which we should do well to put into force, especially in our small dockyards abroad.

But we are digressing. The point to be established is that it is to our advantage in every way to employ all ships of one class in one squadron under one command. This will allow the spare parts for one ship to be available for another, so that all ships may be on an equal footing for mobility and efficiency, and the principle will assist in raising the morale of the *personnel* by the emulation which invariably results at drills when sister ships are in company.

We should endeavour at the least to group our ships into fours, and, when necessary to relieve them, to replace them by a new group of four, or—where this is not possible, at least in pairs. In time of peace, if the *personnel* is available for mobilisation, the fourth ship can be kept in reserve at the base port so as to be available to turn over to whilst a ship is placed in dockyard hands.

Some arrangement of this sort is necessary, for it too often happens that, when a naval force is required for an unexpected service, many ships are not available owing to the want of a refit or docking; whereas if a spare ship were kept on the spot, a "turn over" could be effected in a few hours. In a small degree, this principle has already become the practice with destroyers, but it should also be applied to cruisers. With battle-ships at the present time it is out of the question; for even in peace we are obliged to keep every available modern battle-ship in commission.

DISTRIBUTION OF SHIPS:—BATTLE-SHIPS.

The more one considers the present distribution of our battle-ships, the more the conviction is forced upon one that the Admiralty are doing

¹ This statement is open to question and is hardly consistent with the present organisation of the German fleet. The German Naval Act of April, 1898, provides for the creation of an active battle fleet, to consist of two squadrons of eight ships each, exclusive of the flag-ship. Five, not four, is the number of battle-ships in each of the two groups last built, viz., five of the "Kaiser" class, and five of the "Wittelsbach." The present First Squadron consists of eight battle-ships, in two divisions of four ships each. Although not always consistently carried out, the system of building ships in groups was introduced into our Navy long before it was adopted by the Germans.—EDITOR.

their best to make order out of a chaos of individual ships, each with a different armament, speed, and radius of action.

Every efficient battle-ship we possess is in commission with a complete complement on board, and every new ship as it is delivered is completed for sea without delay to relieve some older ship, which latter is put into our second line with her sister ships. It is no use crying over the want of homogeneity in our battle squadrons, for we really have not got the numbers required at our disposal. By 1904 this state of things will, it is hoped, have disappeared, so we cannot do better than draw an outline of the disposition of our battle squadrons as we would like them to be distributed at that date.

For the Mediterranean twelve ships are considered necessary, as the largest convenient number for acting in concert in war, and to preserve the balance of power in time of peace.

NOTE.—The ships in italics are those already so employed or about to be so.¹

1st Division—“*Implacable*,” “*Formidable*,” “*London*,”* “*Venerable*,” “*Irresistible*,”* and “*Bulwark*.”*

2nd Division—“*Cornwallis*,” “*Duncan*,” “*Exmouth*,” “*Russell*,” “*Albemarle*,” and “*Montagu*.”

Reserve—“*Prince of Wales*” and “*Queen*” as guard ships at Malta and Gibraltar.

For the Channel Squadron only eight ships are considered necessary, as reinforcements are always at hand, and eight is considered the best number for a squadron.

1st Division—“*Majestic*,” “*Magnificent*,” “*Hannibal*,” “*Prince George*.”

2nd Division—“*Mars*,” “*Jupiter*,” “*Cæsar*,” “*Victorious*.”

Reserve—(preferably the worst steamer) “*Illustrious*” at Plymouth.

The Coast-Guard Squadron² should consist of eight ships to take the place vacated by the Channel Squadron when that squadron is required to act in concert with the Mediterranean Squadron.

1st Division—“*Revenge*,” “*Resolution*,” “*Royal Sovereign*,” “*Empress of India*.”

2nd Division—“*Ramillies*,” “*Repulse*,” “*Royal Oak*,”* and “*Hood*” (turret).

Reserve—“*Nile*,” “*Trafalgar*,” “*Sans Pareil*,” and the Admiral class.

¹ This refers to October, 1901. Since that date the ships marked with an asterisk have been so employed.—T. D.

² Now known as the Home Squadron.—T. D.

The only other station on which battle-ships are likely to be required is China, and even there it is questionable whether their places could not be efficiently taken by first-class armoured cruisers on account of their superior mobility, thus releasing a few more battle-ships for service in the Channel, or to reinforce a Particular Service Squadron. At present we have only one division of battle-ships on this station, and it is suggested that they should be supplemented by four of the "Cressy" class placed in the line.

China, 1st Division—"Glory," "Albion," "Goliath," and "Ocean," with the "Vengeance" in reserve as guard-ship at Hong-Kong.

It is desirable to keep a division of battle-ships in reserve ready for mobilisation as a Particular Service Squadron, and for this service we have:—

Particular Service, 1st Division—"Renown," "Canopus," "Barfleur," and "Centurion." These ships are all suitable for passing the Suez Canal to reinforce the China Squadron if required.

The remaining battle-ships should only be mobilised in the event of a disaster to one of the squadrons in commission; for if they were commissioned before, their slow speed, inferior armament and protection would probably leave them a prey to our enemies; but for purposes of mobilisation, even these obsolete ships should be graded in groups of four with as equal capabilities as possible. The individual ships of each group should be attached to the same base port.

AUXILIARIES.

Attached to each of our battle squadrons, we should have two fleet auxiliaries and two large colliers, all capable of maintaining the cruising speed of the fleet. For this service eight fleet auxiliaries and eight colliers should be specially built, for the collier of commerce is far too slow, and as a rule too small; we can, however, congratulate ourselves that however deficient we may be ourselves in these necessary accessories to a squadron, our probable enemies are in at least as bad a plight, and have not even such a good supply of ocean mail steamers, which, in the last resort, are capable of being transformed into armed fleet auxiliaries.

FIRST-CLASS CRUISERS.

Attached to the battle squadrons we require first of all two "cruiser squadrons" of eight ships each for the Mediterranean and Channel for a war footing; in time of peace, each squadron might be reduced to six, to effect a considerable saving in expense and *personnel*.

Of first-class cruisers we have practically three types: the armoured cruiser, the heavily armed protected cruiser, and the smaller light-draught first class cruiser.

The armoured cruiser is best suited to protect the trade routes, and the large protected cruiser is well suited for crushing smaller cruisers. Therefore we should select as our eight ships in the Channel Cruiser Squadron :—

1st Division—"Monmouth," "Kent," "Bedford," "Essex."

2nd Division—"Berwick," "Cornwall," "Cumberland," "Donegal."

Reserve—"Lancaster" and "Suffolk," with possibly two of the above in peace-time. Headquarters—Berehaven.

And for the eight ships in the Mediterranean Cruiser Squadron :—

1st Division—"Andromeda," "Diadem," "Europa," "Niobe."

2nd Division—"Amphitrite," "Argonaut," "Ariadne," "Spartiate."

Reserve—"Blake," "Blenheim"; also two of the above in time of peace only. Headquarters—Gibraltar.

In China, if only one division of battle-ships is kept in commission, they should be supplemented by a division of our best armoured cruisers fit to go into the line.

For this service we require for China :—

2nd Division Battle Squadron—"Aboukir," "Cressy," "Hogue," and "Sutlej."

Reserve—"Bacchante" and "Euryalus."

For the Particular Service Squadron or to assist the Coast-Guard Squadron in protecting our trades routes we have :—"Drake," "Good Hope," "King Alfred," "Leviathan," "Powerful," and "Terrible," all of which in peace-time are also available for carrying relief crews to foreign stations.

On each of the smaller foreign stations, as far as numbers will allow, we should keep a light-draught first-class protected cruiser as the flag-ship, with a similar ship as guard-ship at the base port with a skeleton crew on board to complete her complement on the outbreak of hostilities from the sloops and gun-boats and other ships maintained for police duties in time of peace, all of which should make the best of their way direct to their base directly relations become strained.

Neighbouring stations should have similar flag-ships, so that in the event of war the combination of two stations will produce four more or less homogeneous first-class cruisers—a very respectable force for use in distant waters.

For this service, the following disposition appears suitable :—

Australia :—"Royal Arthur," with "Crescent" as guard-ship at Sydney.

Pacific :—"Grafton,"* with "Theseus" as guard-ship at Esquimalt.

Cape :—"Gibraltar," with "St. George" as guard-ship at Cape of Good Hope.

East Indies :—"Impérieuse," with "Warspite" as guard-ship at Bombay, so as to be available to act with "Abyssinia" and "Magdala."

North America and West Indies :—"Edgar," with "Endymion" as guard-ship at Halifax.

S.E. Coast of America :—"Hawke" or none at all.

If the draught of these ships, or other causes, is an effective bar to their employment in these waters, second-class cruisers should be substituted.

SECOND-CLASS CRUISERS.

Turning now to our second-class cruisers, our best ships in this category are required for the screens to the battle squadrons. Here again, some of our best ships are not yet ready for the pendant, so we will see what can be done in the near future.

For the Mediterranean we require eight ships, as eight is the minimum number with which an effective screen of scouts can be arranged. Perhaps this number is too small, but there is no necessity to oppose like with like in the case of second and third class cruisers where battle squadrons are concerned. These ships have a definite duty to perform and, however great the enemy's force may be in this respect, it is a matter of small moment to the battle squadron, and can much more effectively be dealt with by the cruiser squadron, a force which no number of small unprotected cruisers could resist.

When they are ready for sea it is suggested that the following ships should compose the cruiser screen of scouts for the Mediterranean, on account of their speed rather than their homogeneity :—"Vindictive" and "Furious"; "*Gladiator*" and "Arrogant"; "Hyacinth" and "Highflyer"; "Challenger" and "Hermes."

Reserve—"Encounter," and half the above in time of peace.

For the Channel Squadron, eight ships also are necessary for the same reasons :—

"Diana" and "Dido"; "Doris" and "Eclipse"; "Isis" and "Juno"; "Talbot" and "Venus."

Reserve—"Minerva," and half of the above in time of peace.

For the Coast-Guard Squadron we should keep either in reserve, or else in commission as district ships, eight second-class cruisers at Portsmouth and Plymouth :—

"Brilliant," "Indefatigable," "Intrepid" and "Iphigenia"; "Pique," "Rainbow," "Retribution," and "Sirius."

Spare—"Spartan." The above can also be employed as relief ships abroad if required.

For the China Squadron, small first-class cruisers in lieu of second-class are suggested, so as to help augment the aggregate force as well as for scouting duties.

"*Aurora*," "*Australia*," "*Galatea*," "*Immortalité*," "*Narcissus*," "*Orlando*," and "*Undaunted*."

Reserve—one of the above in time of peace.

For all other stations the numbers are regulated by local requirements, but should be organised in twos and fours of sister ships, so that on combination with the next station a fairly homogeneous force of modern ships is available. The following ships are suitable:—

For North America—"Astræa" and "*Charybdis*."

For Australia—"Bonaventure" and "*Hermione*" (if not required for flag-ships on account of draught).

For Pacific—"Amphion," "*Arethusa*," "*Leander*," and "*Phaeton*."

For the Cape—"Forte" and "*Fox*."

For the S.E. Coast of America—"Flora" and "*Cambrian*."

For the East Indies—"Marathon," "*Melpomene*," and "*Magicienne*."

This leaves us with the "*Andromache*," "*Apollo*," "*Latona*," "*Melampus*," "*Naiad*," "*Sappho*," "*Scylla*," "*Terpsichore*," "*Thetis*," and "*Tribune*," available for training the Royal Naval Reserves, for mobilisation with a Particular Service Squadron, and for reliefs in groups of fours or twos as required.

THIRD-CLASS CRUISERS.

Next we come to third-class cruisers: of these only a few of the best are required for link, or intelligence ships, with our battle squadrons—the remainder are available for foreign service where light draught is a consideration.

For the Mediterranean—"Pegasus," "*Pioneer*," "*Pyramus*."

For the Channel—"Pactolus," "*Pandora*," and "*Pelorus*."

For the Coast Guard Squadron—"Psyche" and "*Proserpine*."

For the China Squadron—"Perseus," "*Pomone*," and "*Prometheus*."

The two projected third-class cruisers as spare to relieve the above.

On the smaller stations we require as an efficient force for shallow waters:—

Australia—"Katoomba," "*Mildura*," "*Ringarooma*," "*Wallaroo*," with "*Tauranga*" in reserve.

Pacific—if any—"Barham" and "*Bellona*."

Cape—"Barracouta," "*Barrosa*," "*Blanche*," "*Blonde*," "*Fearless*," "*Scout*,"

East Indies—"Iris" and "Mercury," "*Cossack*" and "Raccoon,"
with "Tartar" in reserve at Aden.

North America—"Pallas" and "Pearl."

S.E. Coast of America—"Philomel," "Phœbe."

Red Sea—"Archer," "Brisk," "Porpoise," and "Mohawk."

(These last four to be considered for war purposes as
part of East Indies Squadron.)

SLOOPS, GUN-BOATS, ETC.

For service in time of peace, sloops, gun-boats, surveying-vessels, and river service gun-boats are kept in commission, but, as their fighting value in a serious war is a negligible quantity, they will not be considered here.

Torpedo-gunboats should for war purposes only be considered as suitable for harbour defence; that is, as supports to destroyers and torpedo-boats, whilst at the same time carrying out the examination service at the base ports. Torpedo-gunboats should be appropriated for this duty at each base—those in home waters forming the fisheries squadron in time of peace. It is suggested that all coast-guard tenders should be abolished, as performing no useful service and being a waste of *personnel*. The remaining gun-boats should be distributed as at present for use in shallow ports and rivers abroad.

The Examination Service gun-boats might be as follows:—

Malta—"Dryad," "*Harrier*."

Gibraltar—"Hussar," "Halcyon."

Hong-Kong—"Onyx," "Renard."

Sydney—"Boomerang," "*Karrakatta*."

Esquimalt—"Speedwell," "Skipjack."

Cape—"Salamander," "Spanker."

Halifax—"Gleaner," "Gossamer."

Bombay—"Assaye," "*Plassy*."

Portsmouth—"Jason," "Alarm," "Circe," "Leda" (for two
approaches).

Plymouth—"Jasour," "Antelope."

Sheerness—"Niger," "Hebe."

Leaving the "Hazard," "Speedy," "Seagull," "Sharpshooter," and "Sheldrake," available for examination service at secondary bases, such as Berehaven, Milford Haven, Portland, and Dover, and as reliefs for the above.

DESTROYERS.

As regards destroyers in home waters, a pair should be placed under the wing of each coast-guard battle-ship, one in commission and one for the crew to turn over to. These boats should replace the whole of our coast-guard tenders and sailing cruisers.

We should divide our destroyers into divisions, so that the fastest boats are available for service with the squadrons, and the slower ones for harbour defence.

Each destroyer's crew, in time of peace, should be detailed to man two boats, one of which should be kept in commission and the other in reserve ready for mobilisation. Every endeavour should be made to keep sister boats by the same makers grouped in pairs.

As explained before, for the Mediterranean 24 are required, and the following appear to be suitable :—

1st Division :—

30 knots—" <i>Earnest</i> "	-	-	" <i>Orwell</i> "	} In commission, Gibraltar.
" <i>Griffon</i> "	-	-	" <i>Panther</i> " *	
" <i>Wolf</i> "	-	-	" <i>Locust</i> " *	
" <i>Seal</i> "	-	-	" <i>Thrasher</i> " *	
" <i>Coquette</i> "	-	-	" <i>Cygnets</i> "	
" <i>Chamois</i> "	-	-	" <i>Flying Fish</i> " *	} In commission, Malta.
27 knots—" <i>Ardent</i> "	-	-	" <i>Boxer</i> "	
" <i>Daring</i> "	-	-	" <i>Decoy</i> "	
" <i>Banshee</i> "	-	-	" <i>Dragon</i> "	
" <i>Lynx</i> "	-	-	" <i>Ferret</i> "	
" <i>Skate</i> "	-	-	" <i>Starfish</i> "	
" <i>Sunfish</i> "	-	-	" <i>Opossum</i> "	

In China we require at least twelve, six of which should be in commission, and remainder at Hong-Kong.

30 Knots.

" *Otter*." " *Leopard*."
 " *Fame*." " *Foam*."
 " *Whiting*." " *Bat*."

27 Knots.

" *Hart*." " *Handy*."
 " *Lightning*." " *Janus*."
 " *Shark*." " *Surly*."

On each of the other foreign stations there should be at least two sister destroyers for training purposes in time of peace, and for defending the base in time of war.

For the Channel and Home defence we have the destroyers attached to the Channel and coast-guard ships, and our instructional flotillas. No alteration is proposed in the numbers, but it should be understood that the flotillas for the defence of the base ports should be our instructional flotillas, and that each destroyer's crew has a pair of sister boats to run, so that lying up in time of war for coaling and repairs will be reduced to a minimum, and the classes will not be interrupted in time of peace.

On closer inspection it will be found that even in our instructional flotillas there is a needless want of homogeneity, which might easily be remedied.

Torpedo-boats ought to be considered merely as inferior destroyers, and so employed in harbour defence.

RESERVES.

It will be noticed in the distribution suggested that several ships are noted as "to be kept in reserve." This is intended to apply to war-time as well as peace, for the number of casualties amongst our large ships is sure to be very heavy, and the repairs will take, in all probability, months to effect; therefore, where it can be done without unduly weakening the active force, a spare ship of each class should be kept at each base port, and should be used as a training-ship for the reserves, so as to fit our reserves to replace the casualties amongst our *personnel* in ships similar to those in which they have been trained. "Turning over" to the spare ships should be practised in peace-time. When the admiral requires a service to be performed and a captain informs him that his ship is not ready for sea, it should be the custom for the captain to at once transfer his crew to the spare ship and use her as his own until such time as his proper ship shall have been refitted.¹

The placing of guard-ships and reserves in such of our foreign base ports as cannot be considered impregnable, should be governed by the number of men the commander-in-chief has available either as reserves for mobilisation, or in the shape of sloops and gun-boats which could "pay-off" on the outbreak of hostilities. For this purpose it should be the custom for the non-effective ships' companies to drill on board the guard-ship at their base port periodically.

At the present moment, our home yards are over-crowded with shipping, some of which might better be kept in reserve at base ports abroad, and a good deal of which is so old or obsolete as to have no effective value whatever. Obsolete ships might very well be disposed of finally, either as depôts for destroyers, or to be sold for whatever they will fetch—the armour being made use of to strengthen the redoubts of our land forts.

In concluding this branch of our subject, it is the principles involved rather than the details of this disposition that are recommended; for even if this scheme of organisation were accepted in its entirety, it would be found impossible to carry it out practically, owing to the difficulty of arranging the *personnel* and repairs of ships abroad, when re-commissioning, to suit even the peace footing suggested.

¹ This has been the practice for many years in the Irish Mail Service (Dublin Packet Co.), where three complete crews man four ships. Two ships are kept constantly running day and night, whilst the third is a "stand-by," and the fourth refitting. The crews turn over regularly as their ships are taken in hand for refitting.—T. D.

Likewise, many ships, although apparently of equal power, vary very much in their present speeds and in the date of their thorough refits, but a great deal of this unevenness in the classes would disappear if classes were always employed on the same service and given the same amount of wear. Ships whose efficiency has seriously deteriorated through a general breakdown should be removed from the list of sister ships, and placed in a separate category for employment as special-service vessels, of which a number are always required in home waters.

In future building programmes it is hoped that all classes of our ships will be built in groups of fours, or a multiple of that number if the class happens to be a marked success.

THE PERSONNEL.

Having suggested a re-arrangement of our Fleet so as to employ our forces to the best advantage, the question now before us is—How shall we man it?

The general scope of this subject can be conveniently divided into three more or less independent headings, viz., the administration, the officers, and, thirdly, the men.

ADMIRALTY.

Let us first consider the administration of our Naval Service. Is it all that it should be? Many years ago a Royal Commission was appointed to consider the general management of all our Government offices. In their Report to Parliament it was generally acknowledged that the constitution and working of the Board of Admiralty was well suited to the work it had to perform, and other offices could not do better than copy it.

During the last twenty years the Navy has not only passed through a complete revolution in shipbuilding generally, but has practically doubled its size in every direction, *personnel* as well as *matériel*. Has the Admiralty doubled its *personnel* during the same period? Hardly a single responsible officer has been added to the over-worked staff to deal with the enormous extension of business which the expansion of our Fleet has involved. In time of peace this conservative policy has led to much important work and supervision being scamped, and in time of war a general breakdown of the whole machinery is not only a possibility, but even a probability.

The valuable time of the Lords Commissioners of the Admiralty is, under the present system, so much taken up with the "multifarious daily duties that their office involves" that they have practically no time to consider the weightier questions which are the principal *raison d'être* of their existence. It is the excessive time wasted in dealing with the thousands of letters which are received at the Admiralty every week

mostly of a purely routine character, or dealing with details often unnecessarily referred to head-quarters, which saps the vital energy of the high officials whose duty it is to initiate reforms and consider strategical problems to prepare us for war. It is, therefore, considered of paramount importance that the *personnel* of the Admiralty should be re-organised to suit modern requirements by decentralising much of the work of individuals and by increasing the professional staff, particularly on the military side.

There are two ways of increasing the *personnel* of the Board of Admiralty: one is to increase the numbers on the Board itself, and the other to increase the personal staff of each member of the Board.

If the first suggestion were adopted, the re-organisation should take the form of an addition of three or four Naval Lords, with duties similar to those of a Cabinet Minister without a portfolio. They could relieve the Intelligence Department of much of its most important work, and would form a committee of the Admiralty whose time should be spent in considering and initiating reforms and studying naval problems, etc. There is, however, a twofold objection to this amplification of the Admiralty, firstly, because a body of this kind is already in existence under the name of the Defence Committee, a body which does not sensibly reduce the labours of the Board of Admiralty; and, secondly, because it is an accepted administrative axiom that the fewer hands there are charged with executive control, the more efficiently is that control exercised.

It thus appears to be more desirable to increase the number of subordinates rather than to further divide the duties of the executive heads. To this end it is proposed that each individual Sea Lord should have a complete personal staff with minor executive functions entrusted to them to perform at the Admiralty—duties similar to the staff of a commander-in-chief abroad.

The chief-of-the-staff of a Sea Lord should be a capable and specially selected captain on the active list, whose period of service as such should be limited to three or five years, so arranged that the supersession of these officers does not coincide with that of their chiefs, nor with that of others holding similar positions, in order to ensure a continuity of policy. The chief-of-the-staff should attend to all routine matters of minor importance, only referring to his chief for guidance and the establishing of a precedent when necessary.

Acting together, the various chiefs-of-the-staff would also form a very valuable committee always at hand to refer any matter under discussion to, and whose duty it would be to draft all proposed reforms in a business-like manner, so as to put the pros and cons of the question in a nutshell for the final consideration and decision of the Board of Admiralty.

The present civilian secretaries to the Naval Lords should be superseded by permanent officials specially retired from the rank of commander for the purpose, thus following the example recently set in the re-organisation of the War Office. The duties of these officers, assisted if necessary by a civilian staff, should be to keep my lord's pen going, and at the same time would be available for revising and editing the King's Regulations and the numerous books of reference, which under the present *régime* are always more or less out of date.

In lieu of the flag lieutenant, a commander on the active list should be attached to each Sea Lord to be available for watching trials, etc., on behalf of their chiefs, and to collect such details as are required for the investigation of the Naval Lords or their chiefs-of-the-staff in a confidential manner by personal visits to the people or places concerned.

There are many talented officers amongst the senior ranks of our active list who would be only too willing to undertake such duties with benefit to themselves and to the Service in general.

To still further relieve the pressure of work at the Admiralty, important matters should be confidentially submitted to experts amongst officers outside the walls of the Admiralty. To a certain extent in a private manner this is already the practice, but it should be extended on an official basis with payment by results. The subject-matter should be drafted in the form of questions, and sent to specially selected officers, preferably our ablest unemployed officers, whether still on the active list or only recently retired. The answers should be independent of one another and sent to the Admiralty at an early fixed date. The proper officials should then collate the answers, taking care not to suppress the opinions of the minority, and finally lay the results before the Board. These reports would be almost as valuable to the Naval Lords as a report by Royal Commission, without the great expense and unnecessary delay which such a course usually involves. Many officers on half-pay would welcome such holiday tasks if they knew they were not labouring in vain.

At the same time a large augmentation of the *personnel* employed under the direction of the Engineer-in-Chief, the Hydrographer, and the Director of Naval Intelligence, etc., is required so as to allow a little initiative to show itself at head-quarters in the professional branches, and allow the tremendous pressure of work which now exists in these departments to be better dealt with.

The argument that, although such an addition to the *personnel* of the Admiralty may be desirable, it is not practicable, owing to the scarcity of officers available for employment afloat, is not tenable, for in war-time such additions would become a necessity, and our duty in time of peace is to assimilate as far as possible the conditions which will obtain on the outbreak of war.

FLAG OFFICERS.

Great care is taken to train every junior officer at sea for the duties of his office, but when one comes to analyse the education of the executive branch of the Navy as a whole it will be realised that our present system is only adapted to produce efficient captains.

When a captain is promoted to flag rank his principal duties are of a totally different character from those which he has been accustomed to perform. In his new duties he is left to train himself, and it may happen that an admiral, although constantly employed, has never had the opportunity of commanding a battle squadron at sea, so that his ability as a tactician is, at the best, an unknown quantity. To remedy this state of affairs it is proposed that the period of service both at home and abroad of all flag officers second-in-command be reduced to six months, or a year at most, so as to employ as many junior flag officers as possible; and that no admiral should be selected for the post of commander-in-chief of a station until he has served his period as a second-in-command, and shown himself competent for the more responsible command. On foreign stations a manœuvres war should take place annually between neighbouring squadrons under their respective admirals, so that we may find the *personnel* on our admirals' lists thoroughly prepared for a naval war in reality.

OFFICERS.

As regards the *personnel* of our officers, we are undoubtedly short of our requirements in nearly all ranks. The paucity of trained officers in the junior ranks is so acute that it is even felt in time of peace. What will it be then in time of war?

There are two methods of augmenting our numbers, one is by increasing the entries and the other by supplementing the regular officers by officers of the Naval Reserves. The first method is undoubtedly the better, but takes several years to accomplish. In the meantime, therefore, we must rely upon our Reserves and use every means in our power to improve their efficiency.

For the last five years the entries to the "Britannia" have been as large as the accommodation would allow, whilst the period under training there, and afterwards at sea, has been brought down to the irreducible minimum. When the "Britannia" College is opened it is hoped that the entries will be still further augmented and that the cadets' training *en masse* will be continued for a short period at sea before their final dispersion in the fleet as midshipmen. The effect of the increased entries is only now beginning to be felt, and will, it is hoped, in a few years put us on a more satisfactory peace footing.

When the numbers will allow of it, we should endeavour to reduce the percentage of non-combatant officers employed afloat. The

accountant branch and the naval instructors should be gradually withdrawn and their places taken by executive officers "seconded" for this service.

The lieutenants' list is so short that a retirement before the age of forty-five is a rare occurrence. The sub-lieutenants' courses have been cut down to such a fine point that the general education of our officers is suffering daily in comparison with that of foreign officers in order to employ these officers actively, and the shortening of the long course for gunnery and torpedo lieutenants is also under consideration for the same reason. It is hoped that when the numbers will allow of it, more time will be devoted to study in all ranks, especially lieutenants and engineers, and that the courses will be made as practical as their nature will allow of. Still it must be admitted that the percentage of these valuable officers constantly employed in non-effective services is enormous; and as the numbers cannot well be reduced to an appreciable extent, the need of a substantial increase in the total only becomes the more apparent.

It is not generally realised how large this percentage really is. The following table speaks for itself:—

—	Lieuts.	Sub-Lieuts.
Officers studying at the Royal Naval College, Greenwich	38	104
Officers studying in the Gunnery and Torpedo Schools...	78	74
Staffs for the above	43	—
Officers employed in the Training Service (principally harbour ships, brigs, and R.N.R. drill-ships) ...	54	6
Officers employed in Dépôt and Receiving Ships ...	30	—
Officers employed in the Coast-Guard	31	—
Officers employed in the Surveying Service	22	7
Total numbers employed in non-effective ships, etc.	296	191
Total numbers on the Active List	1049	350
Percentage of Officers employed in non-effective services	28.2 %	54.6 %

That is to say, over one-third of the aggregate numbers of our watch-keeping officers, the lieutenants, and sub-lieutenants are constantly withdrawn from active service in our effective ships in time of peace.

RESERVE OF OFFICERS.

If we were involved in a serious war in the immediate future we should be obliged to depend upon our Royal Naval Reserve to a great extent, or else by some other means at once to augment our lieutenants' lists from outside. It is not proposed to add to the numbers of the supplementary list of officers because in practice it is found that, as a rule, the best officers do not come. The cause is not far to seek—the

really good officer in the merchant service has much better prospects in his own line, from a pecuniary point of view, than any pay we can reasonably offer to such officers in the Royal Navy without creating great discontent amongst the regular officers. In the Reserve there are a number of capable officers who have a great liking and respect for the Royal Navy, and would only be too glad to offer their services for a reasonable period if they were treated as regular trained officers and not as students. There has recently been a case of a lieutenant of the Royal Naval Reserve being appointed to one of H.M. ships for a "fifth period of one year's training." Can this be regarded as anything but an official fiction? An officer so appointed would be expected to do exactly the same duty as a *bonâ-fide* lieutenant R.N., and the complement of the ship would not be complete without him.

Why should we not officially recognise "non-continuous service" from the pick of our Reserve to eke out our temporary dearth of regular officers? To get the best officers, the following scheme is suggested. Sub-lieutenants and lieutenants R.N.R. should be sent to sea in H.M. ships for three months in classes with special officers to act as instructors; at the end of this period an "examination for the rank of lieutenant in seamanship" should be held under exactly the same conditions as midshipmen are subjected to. The successful candidates should then be drafted to Greenwich and Portsmouth Colleges, and be given the same courses of instruction as the acting sub-lieutenants, and pass the same examinations for all five certificates. Those who successfully pass should then be sent to sea for six months as watch-keeping officers, and, if favourably reported on, given non-continuous service commissions in the Royal Navy, to be paid as regular officers whilst so employed, and to earn a pension of £15 a year for each year's service completed. They might reasonably be known as the officers of the Royal Fleet Reserve. No doubt many officers would fail to pass; but the result would be to separate the sheep from the goats and promote a healthy rivalry amongst the R.N.R. officers. The scheme enunciated above would also, it is hoped, act as a passport to a good berth in their own service as well as the Royal Navy.

It would be a good thing for the country in general if the tone of the Board of Trade certificates were raised and navigation taught under Government supervision, as it is in Germany, in preference to the cramming and rule-of-thumb practices now so much in vogue.

It is suggested that Greenwich College might beneficially be transformed into a Naval University at which all branches of nautical affairs could be taught, for the mercantile marine as well as the Royal Navy.

Greenwich College is the best-fitted institution of its kind in existence ; but it is also the most expensive, so much so that it is doubtful whether it is worth maintaining at its present cost unless its usefulness is greatly enhanced. If the nation undertook the training of our merchant officers in navigation alone, one great bar to the expansion of our Reserves would be lightened, and a far greater bond of sympathy between the two services would result.

Amongst minor changes recommended in the *personnel* of our officers, the following are suggested :—

1. That all executive warrant officers be borne either for gunnery, torpedo, or signal duties. Nowadays, gunnery and torpedo are such large subjects that no one can really master them both. The rank Gunner (T) should be allowed to die out, and all boatswains should be either qualified in torpedo duties or signals. Now that masts and yards are abolished, except in our training-brigs, the old-fashioned boatswain is an anomaly. His duties can be equally well performed by a Boatswain (T).
2. That engineer and warrant officers be entirely relieved of their store-keeping duties. Each ship should possess one yeoman-of-stores, whose duties would be similar to a dock-yard storehouseman, where he would receive his training. He should hold the rank of warrant officer in large ships, and should be entirely responsible for the issue and charge of all stores supplied to the ship, except victuals, money, clothing, and explosives. This would save a great deal of our warrant officers' time for more useful work in training our men, and would also save a great deal of clerical work at the Admiralty through the grouping of the store headings into fewer accounts with a business man in charge of them. Such an arrangement would also simplify the stowage of stores, for it would not be necessary to provide separate store rooms for each accounting officer, and in drawing and returning stores much time and labour would be saved; in fact, the yeoman-of-stores would become on a small scale a Naval Store Officer's deputy at sea. Whilst ships are in the Fleet Reserve this single official could perform the duty now assigned to three warrant officers, all of which could be better employed at sea or in training our Reserves.
3. It is suggested that only well-trained navigating officers should be appointed to the command of sloops and gun-boats.

Take a newly commissioned gun-boat with a (late) gunnery lieutenant in command. He has no practical experience of navigating duties, and his assistant is a young sub-lieutenant more ignorant than he is himself. On the other hand, take the case of the sub-lieutenant; he is appointed to a gun-boat to make his *début* as a navigating officer. He has no personal experience himself, nor is there anyone serving with him to whom he can look for guidance. On foreign stations our gun-boats are kept in commission principally on account of their shallow draught, which necessitates constant piloting in difficult waters; it is a marvel that they escape with so few accidents.

If a navigating officer is placed in command he is as good as an instructor to the sub-lieutenant; and, at the same time, is himself learning those habits of command which are so necessary to a commanding officer in our large ships, thus qualifying himself by experience for promotion.

4. It is suggested that more life be infused into our coast-guard officers (commanders and lieutenants) by reducing the term of service in these shore berths, and instead of regarding them as shelving appointments to make them a reward for good foreign service. For young officers this would greatly relieve the irksomeness of constant sea-service and remove a great grievance. At the same time it would greatly benefit the coast-guardsmen and keep them more up-to-date in their drills and exercises.

THE MEN.

We have now to consider the "rank and file" of our *personnel*. The disposition of the men in the fleet is fairly obvious if a disposition of the ships, etc., is arranged. We have merely to provide the complements for the ships as required for service. The real question before us is to consider the provision and training of the men in order to have the necessary peace *personnel* available for such disposition backed by an adequate war reserve of men suitable for expanding our fleet and maintaining it on a war footing.

Firstly, it is proposed to treat the subject of our Reserves; secondly, the recruiting for the Navy; and lastly, but not least, the *personnel* afloat.

Of all our attempts to provide an efficient force as a reserve to be called out on the outbreak of hostilities, the Royal Fleet Reserve is the soundest. If there were only enough of it, and it included all ranks and

ratings, it would form an ideal Reserve and its expense would never be grudged.

COAST-GUARD.

Next to our Royal Fleet Reserve our best reserve force is the coast-guard. In this service a complete re-organisation is not only desirable but necessary.

In time of war only such stations as would be likely to prove useful as signal stations would require to be manned by trained coast-guards; that is, a station with a watch of four men at every twenty miles round our coast line, with the watch of four increased to eight with a petty officer at every wireless signal station. All other coast-guard stations should be abandoned. They were instituted as a preventative force against smuggling, a duty which can be very well performed by local police now that the telegraph and railway systems are so well developed, for no serious smuggling could be continued for any length of time without the revenue officers becoming aware of it and giving the necessary information to the police authorities.

Such coast-guard stations as are retained should be supplied with stores, etc., by rail, and the coast-guard tenders abolished wholesale—they will be useless in time of war, and are not worth the expense, in money or *personnel* which their maintenance involves in time of peace.

The present ratings of "chief officer" and "chief boatman-in-charge" are relics of a by-gone age and should be abolished, their places where necessary being taken by young warrant officers and petty officers holding three-year appointments. The present ratings are held by old men who have entirely lost touch with the Service. During our annual manœuvres they go to sea rather as an encumbrance than as a useful part of the complement. They have, in all probability, never seen a quick-firing gun in their lives, and if employed as quarter-masters, have to be first taught the nature of a steam wheel and the use of a sounding machine. It is a pitiable sight to see white-headed chief officers of the coast-guard attempting to perform the duties usually assigned to the midshipman of the watch.

Let it not be supposed that an abolition of the coast-guard is advocated; on the contrary, it should be enlarged to at least double its present numbers, but the whole should be rejuvenated from top to bottom and its duties altered throughout to suit modern requirements. The coast-guards should reckon the ports on our coast as the principal points to be guarded. Every duty now performed in our dock-yard ports which cannot be considered sea-service or training-service should be assigned to the coast-guard. Married quarters, or money value in lieu, should be provided for them at our base ports, and they should take over the care and maintenance of our fleet reserve ships so as to set

free the marines and artificers now so employed for active service afloat. All the boats' crews, naval guards, signalmen, orderlies, yachts' crews, etc., employed in our home ports should be manned by the coast-guard or pensioners, and they should be trained and mobilised for war service in torpedo-boats, the examination service gun-boats, and should generally control the mobile defence of each of our dockyard ports so as to leave every active service rating free to man our men-of-war. The coast-guard should contain all ratings, especially skilled artificers, whose work can be made remunerative by effecting small repairs to ships in the Fleet Reserve, and so as to provide the necessary *personnel* to form permanent trial parties for the navigation of our new ships during steam trials or as emergency crews in time of war, in place of the present scratch crews (told off from the dépôts and other ships in port) at present lent to the dockyard reserve for this responsible duty.

It is not intended that the ranks of the coast-guard, however efficient, should be filled with our best fully-trained men at the expense of the fleet at sea. This class of reserve should bear a definite proportion to the fully-trained seamen afloat—which latter, in turn, should form a definite percentage of those still under training at sea. The roster for entry to the coast-guard, together with the length of their alternate periods of coast-guard and sea service, should be regulated by the requirements of the fleet as a whole, so as to maintain these relative percentages and keep both forces efficient.

The pay of the coast-guard should be raised to be on a reasonable footing compared with service afloat, and it should not be necessary to revert from a petty officer's to an able seaman's rating on joining it. Service afloat, however, should always be better paid than service ashore, and foreign service better than home service.

It should be borne in mind that a sailor is a human being just as much as a soldier. The soldier when he marries is rarely parted from his wife and has quarters provided for his family. In the Navy the fact of a bluejacket or a stoker being married is officially ignored, so that many a man's services are lost to the country at the end of his first period of service from the natural desire to remain at home with his family. A coast-guard service on the lines advocated here would certainly reduce the wastage of *personnel* in our fully-trained seamen.

The dockyard riggers should be recruited from our superannuated coast-guardsmen.

ROYAL NAVAL RESERVE.

As regards our Royal Naval Reserve, an effort should be made to still further sub-divide the classes into sailing, steamship, coast trade, and fishermen.

Of these, the first two are those employed in our ocean trade and whose whereabouts is always a matter of conjecture. These men should not be regarded as available to take their places on board a man-of-war, but should form the crews of such mail steamers as are converted into auxiliary cruisers or store-ships on the outbreak of war. The training of these men should therefore be organised with this end in view. They should drill with the guns these ships carry, and should be collected at R.N.R. dépôts at such British ports as form the termini of the lines to which their ships belong.

Only such of our R.N.R. men as belong to the coast trade, or are employed as fishermen, should be trained to take their places in the re-organised coast-guard, as the latter are required for mobilisation on the fleet being augmented to its war strength.

To make our R.N.R. really efficient for service in the Royal Navy, they should pass through our training-ships as boys to improve their physique whilst young and to instil habits of discipline and obedience to command, whilst at the same time habituating themselves to the conditions which obtain on board a man-of-war. To do this effectively an Act of Parliament would be required to revise the conditions of our fisheries industry.

It is advocated that a law should be placed upon the Statute Book :—

1. Forbidding the employment of unlicensed fishermen in our fishing fleets.
2. The apprenticeship for the fishing trade to be served in the training-ships of the Royal Navy, and no license to be granted unless such apprenticeship has been served.
3. The whole of our fishing fleet *personnel* to be considered as a Naval Reserve for a period of seven years after licensing in return for their gratuitous training, after which if qualified in gunnery or stoking, etc., to be transferred to the ordinary ranks of the Royal Naval Reserve as at present.

Such a law would be a boon to many of the poorer members of our population, for at present Poor Law guardians are apt to give up the charge of their *protégés* to any fisherman who will take them off their hands. The life which these poor boys lead in our North Sea fishing fleets is about as miserable an existence as can be imagined. It has been described as worse than penal servitude.

If such a law could be made to apply to the white population of our Colonies, and suitable training establishments were arranged, a Reserve for our stand-by ships abroad would help to solve the manning question at our base ports abroad in the future.

There would, no doubt, be great difficulty in passing such legislation, owing to our free-trade tendencies, and to the fact that in many districts fishing is practically a hereditary industry. If, however, the industry could be converted into a hereditary Naval Reserve the country would be amply repaid for the cost which such technical education would involve.

RECRUITING.

The strength of our *personnel* in the Navy depends primarily upon the recruiting question. The greater the number of boys and young seamen we train, the better position will the nation be in as regards its Naval Reserves.

At present we have some 10,000 boys under training. The number should be permanently raised to at least 15,000. The census shows that there is no lack of youths of a suitable age, but the difficulty is to get an adequate supply of desirable candidates. Their future training presents no great difficulty save the expense, and that is a matter which ought not to weigh in the balance when the importance of our naval *personnel* is concerned, especially as the money at present voted for our Reserves is such a trivial item in our Estimates.

Some authorities on Naval Recruiting have advocated entry into the Royal Navy at a more advanced age, so that the average age of our ships' companies may be raised in order to produce a *personnel* with better stamina for active service in unhealthy climates. There is also a tendency nowadays to shorten the period under training—a tendency which is certainly desirable if it does not lead to a loss of efficiency, but which, nevertheless, still further reduces the average age of the *personnel* afloat.

Apart from the training question, the raising of the age of entry into the Royal Navy, to any appreciable extent, is not advisable, for one cannot dissociate the recruiting for the Navy from the recruiting question of the Army, Marines, Militia, and Volunteers. The number of desirable candidates for the King's Service under our voluntary service system is limited, and it is, above all, necessary that of these prospective recruits the Royal Navy, as our first line of defence, should have the first pick. On a large scale, the best recruits are only to be obtained by being the first in the recruiting field. It is very desirable, therefore, that each of the King's Services should be recruited from candidates of different ages, and that these ages should be so arranged that the most important Services have the best choice. The average age required for the men in each corps can be maintained by adjusting the length of compulsory active service required after the training has been completed.

In the Royal Navy, the average age of our ships' companies afloat in time of peace is not so important a matter as the provision of an adequate

war Reserve of well-seasoned men, well trained, and kept thoroughly in touch with the Fleet, a force such as the Coast-Guard Service advocated above, for example.

Our boys are necessarily entered at such an early age that the real person the recruiting officer has to appeal to is not the boy himself, but his parents, and good parents have a natural objection to sending their boys into any employment, especially that of a martial character, where they expect to lose sight of them practically for life, save for the very brief holidays at long intervals.

If the Admiralty could see their way to altering the time of "signing on" for 12 years' service in the Royal Navy to the age of 19, instead of on joining at the age of 16, many parents would be glad to allow their sons to be usefully employed in such a healthy and invigorating life as our boys lead during the period of training. And at the end of that time the youth would be in a better position to judge for himself as to whether he will make the Royal Navy his profession for life, or join the Naval Reserve, and thus keep touch with the Fleet whilst seeking civil employment on shore. It is to be hoped that young men joining the Reserve in this manner would habituate a greater number of our growing lads to a sea life, and so tend to re-populate our mercantile marine with British seamen. In effect, such a Reserve would practically rehabilitate the Royal Naval Artillery Volunteers, with none of the defects which led to the abolition of that corps.

The time under training for all boys should be divided into three periods: the first period to be spent in the home training-ships, and brigs or sloops; the second period as part complement of the ships in our cruiser squadrons; and the third in our battle-ships.

If it were estimated that two-thirds of the 15,000 lads entered yearly and so trained "signed on" at 19, together with a proportion of the fishing apprentices, there would be ample to meet the needs of the Fleet, and even to help recruiting for the stokers and mechanical ratings. This portion of our programme would cost money, no doubt; but a large Naval Reserve is a necessity for which the country is prepared to pay.

Without going to the length of conscription, it is hoped that some such scheme as the above will be adopted without delay, so as to provide voluntarily a Reserve similar to that which our neighbours produce by sending short-service conscripts to sea.

THE PERSONNEL AFLOAT.

We now come to the most difficult and complex part of our subject, viz., the *personnel* afloat. How can it be adapted for expansion in time of war?

It has often been said that nowadays an untrained man is useless on board a man-of-war, and that it takes several years to train the raw recruit into the finished article. If this be so, we must either enter an enormous Reserve and keep them under training for several years so as to provide a sufficient *personnel* for a war footing; or else, as an alternative, we must adapt our Navy at sea so as to make our fleet efficient without such excessive training in the *personnel*.

Let us go to the root of this matter. The great business principle of all our manufacturing firms, and even in our own dockyards is, first of all, a clear and complete division of labour into two distinct classes, the skilled and the unskilled, the first highly trained and highly paid, the second untrained and poorly paid. The duties of the skilled are decentralised to the utmost, the duties of the unskilled are made as universal as possible. Herein lies a most important administrative principle which of late years has been practically obliterated by an attempt to train the whole of our peace *personnel* as skilled labour—a policy which leads to an unnecessary waste of talent in many directions with a corresponding want of even rudimentary knowledge in others; it also practically precludes the employment of anyone not so trained to fill vacancies afloat even in peace-time.

We should so organise the whole of the duties performed on board a modern man-of-war that each detail of its interior economy—the working of each gun, for instance, will only require one, or at most, two highly-skilled men to work it, assisted by as much unskilled labour as is thought desirable. It is only by carrying this principle to its logical conclusion that the Admiralty can prepare our ships in time of peace for the reception of untrained men in time of war, without seriously impairing the fighting value of the whole.

This apparently radical idea is no new one—our naval history, up to quite recent times, is full of examples of it. The pity of it is that we are gradually losing sight of its benefits by working for a peace efficiency rather than a war efficiency.

In the early days of our Navy the permanent crew of a man-of-war when lying “in ordinary,” or in the Fleet Reserve as we should call it nowadays, consisted of the master, the boatswain and his mates, the gunner and his mates, the sailmaker and the ropemaker, etc. On the ship commissioning, the captain and his lieutenant—neither of them necessarily seamen—together with a company of soldiers, joined the ship. Thus we see that even in the earliest times our ships went forth to battle with merely a nucleus of highly-trained petty officers with a crew of

unskilled but disciplined landsmen to do the manual labour of navigating and fighting the ship under their directions.

Later, in Lord Nelson's time, we find the officers and petty officers all highly trained for their individual duties which were specified in the names of their ratings; at this period decentralisation of the skilled element was carried to an extreme. Thus a petty officer was rated "captain of the foretop," "captain of the forecastle," "captain of the hold," etc., but never held office in a dual capacity in the same ship, and if he served as "captain of the foretop" in one ship he generally became "captain of the foretop" in his next ship; but otherwise the crews of our ships were nothing more than a rabble collected by the press-gang, with soldiers to keep them from open mutiny or desertion. Each petty officer was given a handful of pressed men to work in his part of the ship, and he himself became nothing more than the leader of a gang of labourers. In course of time the pressed men under this system became the best seamen that the world produced.

At the present time many foreign men-of-war are manned merely by a party of petty officers and men completing time for pension—the skilled labour—assisted by a large number of conscripts who only remain a few years afloat and then pass to a naval reserve.

Now, in our Service, neither conscription nor a short service system for our men (not boys) is advocated, but what is suggested is a re-organisation of our *personnel* afloat.

It is proposed to greatly decentralise the training and duties of our ships' companies by dividing the subjects into more headings, embracing a greater variety of subjects in which every man, after having learnt a modicum of the whole, can then be trained as a highly skilled man in one small branch of his own selection, so that when the men are employed in any duty which happens to be his particular speciality he can act as the "leader of the gang," whilst at other duties he reverts to the position of a trained man grouped together with the untrained and partially trained under the direction of another expert.

The mechanical details of every piece of mechanism in our men-of-war should be arranged so as to group the skilled work together in such a manner as to allow of its being performed by a few specially trained men and so simplify the remainder as to admit of its use by untrained men. If this is done, the tacking on of raw hands, such as men from our fisheries, to the unskilled portion of the ship's company, would make very little difference to the efficiency of the whole.

Our present method of training is very wasteful. A large percentage of highly-trained men are very rarely called upon to use their special talents, and their general duties can as a rule be performed just as well by

the marines, infantry soldiers taught naval gunnery and accustomed to a sea life, but whose education is completed in less than half the time and at half the cost.

Our object throughout the education of our ships' companies should be to provide real handy men in the lower ranks, men fit to do any conceivable duty which does not require great technical skill. To fit men so trained for petty officers' ratings we should endeavour to make each one an expert in one, and only one, subject which he can thoroughly master. In action these ratings should invariably be employed to perform the duties for which they are severally qualified, and not more than two men need necessarily be trained for the office which only one man can perform at a time.

On being rated ordinary seamen the serious work of training our crews should commence. All men of this rating in the ship's complement should be divided into classes corresponding to the numbers in their messes, a system which is already in vogue in the Chilian Navy. Each class should be put through a complete course, lasting from a fortnight to three weeks, in each of the following subjects, at the end of which an examination should be held, and those found qualified in the subject, which should be of a general but elementary character, should pass on to the next course—an interval being allowed between the courses if the men's services are required for refitting or routine duties. Each class should be taught by a highly-trained petty officer, rated as an instructor in his particular subject. No man should be allowed to pass to the rating of able seaman until he has successfully passed all the elementary subjects, all of which should be obligatory. The pay of our ordinary and able seamen should be graduated according to the number of subjects in which they have qualified. The subjects suggested are shown in the following sketch:—

1. *Gunnery.*

a. *Elementary course:—*

Duties of the lower numbers of a gun's crew.

Duties of the ammunition supply parties.

Duties of a machine-gun's crew, including practice.

Short practice with small Q.F. guns to select good shots.

b. *Able seaman's course—to qualify for entry to the gunnery school:—*

The course as now laid down for seamen gunners with practice from heavy guns, but always to be carried out in sea-going ships.

2. *Seamanship.*

a. Elementary course :—

Duties of a boat's crew under oars, sail, and steam.

Duties of a helmsman, leadsmen, and look out.

And generally—the course laid down for ordinary seamen and boys.

b. Able seaman's course—to qualify for training as quarter-masters, boatswains' mates, etc. :—

Training for special helmsmen and leadsmen, telegraph-men, etc.

The rule of the road at sea.

Training as coxswains of boats.

Wire-splicing and sailmaking (*i.e.*, sewing, etc.).

Duties of a destroyer's and torpedo-boat's crew.

3. *Torpedo.*

a. Elementary course :—

Duties of the lower numbers of a tube's crew.

Management of dropping gear.

Sweeping, creeping, and method of laying mines.

b. Able seaman's course to qualify for entry to torpedo school :—

Whitehead practice.

Systems of electric lighting.

Batteries for night sights and bells.

Fitting outrigger charges.

Fitting of mines, etc.

Method of picking up telegraph cables.

Generally, the course laid down for torpedo-men, but to be carried out in sea-going ships.

4. *Signalling.*

a. Elementary course :—

Duties of a signalman generally.

To know the colours of the flags.

To be able to make and read semaphore messages.

b. Able seaman's course—to qualify for entry to a signal school :—

Special tests for eye-sight.

To be able to make and read Morse.

Signal duties up to the standard now required for the rating of qualified signalmen.

5. *Musketry.*

a. Elementary course.

Rifle and field exercises including route marching.

Morris Tube and rifle practice.

Duties of sentries and the care of small arms.

Pistol drill and practice.

Duties of the lower numbers of a field gun's crew.

- b.* Able seaman's course—to qualify for entry to a musketry school :—

Musketry practice to select good shots.

Pistol and Morris Tube practice.

Duties of section leaders and markers.

Military scouting.

Field gun practice.

6. Stoking.

- a.* Elementary course :—

General duties of a second-class stoker with practice under steam, for which extra pay should be allowed.

- b.* Able seaman's course—to qualify for a convertible rating to seaman stoker :—

Duties of a stoker in the engine-room and a first-class stoker's duty in the stokehold in harbour and at sea.

Able to run a steamboat's engines and boiler.

7. Mechanical Training.

- a.* Elementary course :—

The rudiments of the shipwright's and blacksmith's trades, so as to be able to make themselves useful as mates to the mechanical ratings.

- b.* Able seaman's course—to qualify for the rating seaman mechanic :—

After a more advanced course to pass an examination similar to that for the rating "stoker mechanic."

8. Gymnastics.

- a.* Elementary course :—

As at present.

- b.* Able seaman's course—to qualify for entry to School of Gymnastics :—

A more advanced course for young men of good physique who wish to become gymnastic instructors.

9. Optional.

Special classes for such able seamen as are required for duty in submarine boats, to qualify as divers, etc.

All the elementary subjects should be obligatory, and special note should be made of such as show special proficiency in any subject, so that on being rated able seaman a man can at once be put through the able seaman's course in his best subject, and then be permanently assessed

to those duties as far as the complement will allow, and the general duties of the ship admit of. The able seaman's course is intended to pave the way for special training as petty officers and instructors, and only those who have passed these able seaman courses should be admitted to the schools on shore. Men having qualified as specialists in one subject should be encouraged to pass the able seaman's courses and other courses as opportunities offer. The gunnery department should be divided into two, gunnery and musketry, and men should be selected according to their abilities as good shots with heavy guns and rifles primarily; similarly the signalmen should be selected for their intelligence, and their eyesight should be specially attended to. Able seamen qualifying for employment as stokers, as occasion arises, should be tested for physical endurance during full-speed trials in the stokeholds. To qualify for entry to the Coast-Guard, a man should have passed at least half of the able seaman's courses.

It is to be hoped in course of time, when the recruiting question is satisfactorily settled, that the individual classes of seaman, signalmen, marines, and stokers, will be gradually allowed to die out, and that only one class of recruits will be entered as boys; and that the separation into the different departments will not be allowed to take place until the able seaman stage is reached. The pay of the various grades can always be so adjusted as to ensure the proper numbers coming forward for the skilled ratings. In the meantime, a step towards this ideal can easily be accomplished by keeping a portion of our stokers in harbour under training in the elementary subjects, especially gunnery and musketry. And *vice versa*, our seamen should be regularly employed, for say a month at a time, in reasonable numbers, to work in our stokeholds under instructors appointed for the purpose.

MARINES.

It is proposed to partially withdraw the marines from active service afloat, or else convert them into seamen. After all, what is a marine? He is an infantryman accustomed to sea life. In a battle-ship or cruiser he is reckoned as a useful addition to the *personnel*, but by no means a necessity. Under the scheme of training sketched above, an able seaman, qualified in all the elementary subjects, would be of far more use on board ship, and if he were specially qualified in musketry in the proper school suggested, would prove to be at least as good a soldier as a marine light infantryman.

When our *personnel* reaches its proper dimensions, if not before, it is advocated that all fortified naval bases abroad be entirely garrisoned by

marines, and that for this purpose the Royal Marine Artillery and Royal Marine Light Infantry be amalgamated into a Royal Marine Garrison Artillery.

After the recruit stage all marines should spend a year on board a man-of-war for training in the elementary subjects, and so become accustomed to life at sea—thus forming a Naval Reserve to supplement the *personnel* of the fleet on foreign stations if required when their bases are not threatened. In their shore training the marines should include submarine mining and the care of naval ordnance stores and ammunition, at their respective ports.

The marines are a most useful body of men, but the limits of their utility should be clearly defined. If it is argued that they are fit to replace seamen afloat under modern conditions, then the *raison d'être* for their employment afloat as a distinct corps disappears, and the sooner they are transformed into bluejackets proper the better. Marines afloat have proved themselves to be excellent seamen-gunners at target practice, and in many other ways have shown themselves fit for such a change of ratings. And if they are not so, the less they are employed as part of the skilled *personnel* afloat the better.

Class distinctions in the lower grades should be abandoned. All men employed afloat should be first of all general service seamen, however poorly trained; and as a sort of secondary education, qualified as gunners, infantrymen, stokers, signalmen, artificers, domestics, etc.

The marines are the naval militia, and entry to the Royal Navy at advanced ages might be permitted to such of the marines who showed good seaman qualities during their period of training afloat. Marine recruiting does not sensibly interfere with naval recruiting, so an augmentation in both Services is considered desirable to swell our naval *personnel*.

GENERAL *versus* DIVISIONAL DRILLS.

In considering the *personnel* of our Navy as a whole from a business point of view and as a national undertaking, besides the separation of the duties of the skilled from the unskilled men employed in the Fleet, there is another point which must strike all outsiders visiting our ships, and that is the enormous complements which our men-of-war carry in commission, out of all proportion to the numbers required for keeping the ships efficient in time of peace. Until better labour-saving appliances can be found for working our guns and boilers these excessive crews are unavoidable. A man-of-war's complement must of necessity be her crew for steaming into action with every boiler alight and every gun manned, but except during the time when the ship is cleared for action these enormous numbers are not required. This has always been so: we

read in our naval history books of ships keeping their anchors and copper burnished so as to keep the crew employed, and so prevent laziness and possible mutiny. Nowadays we suffer from the same complaint in all our large sea-going squadrons. For the first six months of a commission there is plenty of work for all hands, getting the ship into good working order and drilling the ship's company into shape, so as to be able to compete at evolutions with the other ships of the squadron. After this period the amount of efficiency gained by constant general evolutions is very slight, and out of all proportion to the enormous amount of time spent in their performance. Our admirals are obliged to order daily general drills on board and on shore with frequent short cruises, to keep the ships' companies actively employed and so prevent deterioration in the morale of the fleet, for after a fortnight in harbour, when the ship is once clean and efficient, neither the stokers below nor the bluejackets on deck have any work of such importance to perform in time of peace that could not be performed in a couple of hours a day. On the other hand, during war the incessant watch which must be kept with the light guns manned for a night torpedo attack, etc., will fully employ every bluejacket; and even in peace-time when the ship is required to steam at high speed for any length of time the complement of stokers is sorely inadequate for the physical strain they are called upon to endure.

It is not suggested that our evolutions as at present performed are a waste of time, but that if a more efficient system of training can be devised, the proportion of general drills might, without detriment to the Service, be considerably reduced. If one day in the week were set apart for drilling the ship's company as a whole, in a manner corresponding to an admiral's inspection, and to which all other work was to give way, there would be ample time devoted to this class of instruction. All other instructions should take the form of divisional drills with expert officers and petty officers in command, at which exercises far more can be learnt in the time available. More attention should be paid to individual instruction than is the custom at present. The general evolutions should be regarded more as a training for the officers in charge rather than for the men under their command.

Whilst on this subject, it is suggested that the *personnel* in the lower ranks might be divided into three watches with advantage, instead of two. Most routine matters, especially in large ships, can be conveniently done by a smaller watch when all hands are not required. At night, as long as the watch at sea is sufficient to provide for the necessary "tricks," and to allow of the water-tight doors being closed without disturbing the sea-boat's crew, the loss of the extra men would not be

felt. The engine-room departments of our ships have for years been divided into three watches, and, now that masts and yards have gone, surely it is time for the deck hands to follow suit. Besides keeping the whole ship's company in a war organisation better suited for severe strains, this would allow of two complete watches being always under instruction in peace-time except on the general drill day (Saturdays and Sundays of course excepted), and so allow the time for a more comprehensive class training on the remaining four week days.

SEAMEN STOKERS.

Great stress is laid upon the necessity of revising our methods of training the *personnel* so as to allow of further interchangeability between the bluejacket and stoker ratings, especially in cruisers. Actions nowadays must necessarily be short on account of the ammunition supply being limited. It would be a great advantage to reckon the stoker fire brigade as relief guns' crews during action; and after it, especially after a cruiser has pushed home a reconnaissance and collected all the information she sought, a large addition to the stoker complement, by assistance from trained seamen, would allow of the speed being considerably increased whilst returning to impart the information to the proper authorities. With our present stoker complements a four-fifths I.H.P. speed for any length of time is an impossibility in many ships.

The essential difference between the seaman and stoker lies in the method of entry and subsequent training. If in course of time the recruiting for both classes could be put on the same footing, interchangeability could be easily effected; in the meantime a great deal can be done by teaching each the rudiments of the other's duty.

Recently the following question was put to one of our leading inspectors of machinery, an expert in water-tube boilers:—

Supposing in a battle-ship or cruiser in commission, you were given a class of young ordinary seamen who had never been in a stokehold or engine-room. How long would it take you, assisted by well-trained stoker instructors, to turn those men into first-class stokers, efficient to run a full-speed trial in a water-tube boiler ship? He replied, that if facilities were given him as to lighting fires specially for the purpose, he could train them in their stokehold duties in six weeks, but that it would take three months to accustom them to stand the climatic conditions and hard work which a steam trial involves. He also stated that he would not like to trust those newly trained to tend auxiliary engines or for engine-room work, without providing petty officers to watch over their actions.

Of course three months is too long a course for general application throughout the Service, but there is no apparent reason why every seaman should not be made the equivalent of a *second*-class stoker after a month's training as opportunities offer, with a nucleus of able seamen in each ship still further trained as a first-class stoker reserve to assist the proper staff when the maintenance of a high rate of speed is considered essential.

In all the elementary training suggested, great care should be taken to teach nothing that cannot be performed by a novice of average intelligence, provided that he had some one working beside him to show him the way, so that at general evolutions those who have already passed in the subject may form the backbone of the party under the supervision of a skilled petty officer.

RATIO OF SKILLED TO UNSKILLED LABOUR.

The total number of petty officers in the complement is not disturbed by this scheme, but every petty officer is required to be highly trained in some one subject. The ratio of petty officers to men, according to our Parliamentary returns, is about one to four, so that the complement of a man-of-war, under ordinary circumstances, is as follows:—

	Per cent.	
Petty Officers, all grades	25	} Skilled.
Fully-trained men (A.B.'s)	25	
Partially-trained men (Ords.)	35	} Unskilled.
Boys and untrained men	15	

This is practically what a ship's company amounts to after the first year's commission in peace. In time of war the complements could be revised as follows:—

	Per cent.	
Petty Officers	20	} Skilled.
Fully-trained and Coast-Guards	25	
Partially-trained and Naval		} Unskilled.
Reserves	30	
Boys and untrained	25	

If on a war footing 5 per cent. Coast-Guards, and 5 per cent. Naval Reserves were included in the complement, we should save 5 per cent. petty officers, 5 per cent. fully-trained men, and 5 per cent. partially trained men from each ship in commission at home to help mobilisation when the schools close.

The engine-room staffs for peace and war would have to be provided with a larger proportion of skilled men, and should be :—

	Per cent.
Petty Officers, all grades - - - -	25
Trained men - - - -	50
Partially-trained men - - - -	25

In time of war Coast-Guards and Naval Reserves who had been trained for the purpose could eke out the skilled element in the stoker ratings.

These proportions are only suggested as a sliding scale which should be altered from time to time according to the general state of efficiency of the *personnel*, so that on mobilisation each ship would receive as good a leaven of trained men as possible. Abroad where reserves are not available, the peace complement must be regarded as a war complement.

SUMMARY.

It is now necessary to see how the *personnel* of our fleet suits the distribution of the *matériel* suggested. On the following page is a table calculated from the complements of ships as stated in the "Naval Annual," 1901, for the ships we have now in commission exclusive of the training services, etc., compared with the numbers which our squadrons will require if the scheme suggested for the distribution of our Fleet in 1904 is carried out, and the proportion between that distribution and the war strength.

Where the war strength exceeds the peace strength in squadrons whose bases lie within easy reach of home, if the extra *personnel* is not available on the station, it is intended that the reserve ships shall be manned either in England, or completed by drafts from England on mobilisation. On distant stations, as will be seen in the following table, the additional *personnel* required for a war footing is relatively small, and its provision presents no great difficulties, but should be provided for so as best to suit local conditions by one or more of the following methods :—

1. By maintaining a Colonial Naval Volunteer force at the base port trained on board the local guard-ship.
2. By withdrawing part of the marine garrison from the base port for service afloat and replacing them by local military forces.
3. By calling out the Royal Naval Reserve-men in the vicinity.
4. By maintaining a Fleet Reserve of coast-guardsmen at the base port for this purpose.
5. By reinforcing the squadron from home by additional ships carrying supernumeraries for distribution on arrival.

SUMMARY OF PERSONNEL.

---	1901.	1904.	War.
Mediterranean	14,621	20,572	25,345
Channel	12,193	17,508	20,142
Coast-Guard	9,616	8,872	11,439
China	10,192	11,016	14,040
Australia	2,468	2,633	3,128
Pacific	1,649	2,428	2,612
North America	2,794	2,086	2,388
S.E. Coast of America	588	1,058	1,058
Cape of Good Hope	2,463	2,324	2,824
East Indies	1,740	1,896	2,776
Particular Service	—	—	7,462
Totals	58,324	70,393	93,214

This list does not claim to be accurate, but the general totals probably bear a fairly correct relation to one another.

If the war strength afloat is 100 per cent., then our peace strength afloat should be raised from 60 per cent. to 70 per cent. to effect the redistribution of ships suggested for 1904, and then gradually reduced to the normal 60 per cent. as our *personnel* increases.

The principal additions are required to the Mediterranean and Channel Squadrons, where an increase of 11,000 men is advocated. Until sufficient numbers are forthcoming, it is suggested that these two fleets should be regarded as combined, and only allow one cruiser squadron and one cruiser screen to the whole, in time of peace. This would allow of a reduction of 9,000 men. The remaining 2,000 required afloat should consist of boys undergoing their last year's training distributed throughout the first and second class cruisers for training. This reduction should not be allowed longer than absolutely necessary as it spoils our best modern training ground, and in war, unless the additional *personnel* were available for instant mobilisation, would leave our trade routes practically unprotected.

The object of this essay is not so much to attempt to lay down a policy for the disposition of the British Navy, as to suggest as many points as possible out of which a definite peace organisation can be evolved, which, at the critical moment, will allow our *matériel* and *personnel* to be most rapidly expanded to war strength.

The engine-room staffs for peace and war would have to be provided with a larger proportion of skilled men, and should be :—

	Per cent.
Petty Officers, all grades - - - -	25
Trained men - - - -	50
Partially-trained men - - - -	25

In time of war Coast-Guards and Naval Reserves who had been trained for the purpose could eke out the skilled element in the stoker ratings.

These proportions are only suggested as a sliding scale which should be altered from time to time according to the general state of efficiency of the *personnel*, so that on mobilisation each ship would receive as good a leaven of trained men as possible. Abroad where reserves are not available, the peace complement must be regarded as a war complement.

SUMMARY.

It is now necessary to see how the *personnel* of our fleet suits the distribution of the *matériel* suggested. On the following page is a table calculated from the complements of ships as stated in the "Naval Annual," 1901, for the ships we have now in commission exclusive of the training services, etc., compared with the numbers which our squadrons will require if the scheme suggested for the distribution of our Fleet in 1904 is carried out, and the proportion between that distribution and the war strength.

Where the war strength exceeds the peace strength in squadrons whose bases lie within easy reach of home, if the extra *personnel* is not available on the station, it is intended that the reserve ships shall be manned either in England, or completed by drafts from England on mobilisation. On distant stations, as will be seen in the following table, the additional *personnel* required for a war footing is relatively small, and its provision presents no great difficulties, but should be provided for so as best to suit local conditions by one or more of the following methods :—

1. By maintaining a Colonial Naval Volunteer force at the base port trained on board the local guard-ship.
2. By withdrawing part of the marine garrison from the base port for service afloat and replacing them by local military forces.
3. By calling out the Royal Naval Reserve-men in the vicinity.
4. By maintaining a Fleet Reserve of coast-guardsmen at the base port for this purpose.
5. By reinforcing the squadron from home by additional ships carrying supernumeraries for distribution on arrival.

SUMMARY OF PERSONNEL.

	1901.	1904.	War.
Mediterranean	14,621	20,572	25,345
Channel	12,193	17,508	20,142
Coast-Guard	9,616	8,872	11,439
China	10,192	11,016	14,040
Australia	2,468	2,633	3,128
Pacific	1,649	2,428	2,612
North America	2,794	2,086	2,388
S.E. Coast of America	588	1,058	1,058
Cape of Good Hope	2,463	2,324	2,824
East Indies	1,740	1,896	2,776
Particular Service	—	—	7,462
Totals	58,324	70,393	93,214

This list does not claim to be accurate, but the general totals probably bear a fairly correct relation to one another.

If the war strength afloat is 100 per cent., then our peace strength afloat should be raised from 60 per cent. to 70 per cent. to effect the redistribution of ships suggested for 1904, and then gradually reduced to the normal 60 per cent. as our *personnel* increases.

The principal additions are required to the Mediterranean and Channel Squadrons, where an increase of 11,000 men is advocated. Until sufficient numbers are forthcoming, it is suggested that these two fleets should be regarded as combined, and only allow one cruiser squadron and one cruiser screen to the whole, in time of peace. This would allow of a reduction of 9,000 men. The remaining 2,000 required afloat should consist of boys undergoing their last year's training distributed throughout the first and second class cruisers for training. This reduction should not be allowed longer than absolutely necessary as it spoils our best modern training ground, and in war, unless the additional *personnel* were available for instant mobilisation, would leave our trade routes practically unprotected.

The object of this essay is not so much to attempt to lay down a policy for the disposition of the British Navy, as to suggest as many points as possible out of which a definite peace organisation can be evolved, which, at the critical moment, will allow our *matériel* and *personnel* to be most rapidly expanded to war strength.

EDUCATION AND ITS ANCILLARY, THE MILITARY PROBLEM.

*By Lieut.-Colonel JAMES BAKER, late Minister of Education,
British Columbia.*

Tuesday, 27th May, 1902.

Lieut.-General Lord WILLIAM SEYMOUR in the Chair.

THE subject of Education, which we are about to discuss this afternoon, is the most important which can occupy the mind of humanity, because upon the genuineness of its objective must depend the future advancement of the human race.

When we attempt to fathom the history of education or to seek for its origin, we find ourselves pushed back to the genesis of life, and we discover that education is the source, the leading forth of that wonderful evolution of organisms which has been revealed to us as part of the great purpose of the Almighty, and we find that in this evolutionary process there is a *freedom of will* in the organism—it is a mystery far beyond our ken, but our reason tells us that it is there—and by dint of this knowledge of the evolution of the past, its connection with the present, and its relation to the future, we are enabled to recognise that, coupled with this freedom of will, and intimately associated with it, there is an esoteric directive command, which can best be expressed and defined by the one word “*excelsior*.” And we also find that any power possessed by the organism for raising itself on to a higher plane of being, can only be accomplished at the expense of “*effort*.”

Now, it is not my intention to enter into, nor to weary you with, pedagogical details, but rather to deal with education from a broad and comprehensive basis as the regulator of human action, and consequently as the necessary function of military education, which is merely ancillary to the main objective; and I wish especially to draw attention to this important point, as there is a tendency in the present day to rather lose sight of the true function of instruction. I shall, therefore, endeavour in my lecture to prove how necessary it is to deal with education objectively, before we can profitably do so subjectively, as applied to military instruction.

The subject of education has been forced with greater intensity upon the attention of society during the last half century or so, by reason of the introduction of the free education of the people by all the civilised nations of the world, and this equality of opportunity for the development of the mind—which every child can now demand from the State as a right—has produced, and is producing, a wonderful revolution in society, a revolution which as yet is but little recognised or appreciated by the general public, *but which any careful observer of events can easily mark, especially from the fact that, the guiding principle among all legislation in the present age has for its object the greatest good of the greatest number.* This is an important phase in the evolution of education. And we can also hear the echo of the power of this intelligent voice of the people in a remark which fell from the Prime Minister of England, not so very long ago, to the effect that the future policy of the British Government must be guided by the “man in the street.”

Now, as we are alluding to the free education of the people, it may be instructive to note in passing the effect which it has upon crime and pauperism in Great Britain; and I call attention to this point to illustrate the power of the objective in education.

If we go back to the year 1887 we find that the population of Great Britain and Ireland was 36,599,143 souls, and that the number of children attending the primary schools in that year was 4,019,116. We also find that in the same year there were committed for criminal offences 18,343 persons out of this large population. Now, if we come to the year 1900, only thirteen years afterwards, we find the population has increased to 40,909,925, while the number of children attending the primary schools has increased in like proportion to 5,292,219, and we should naturally expect that with this large increase in the population there would be a proportionate increase in the number of people committed for criminal offences. But what do we find? That whereas in 1887 that number was 18,343, in 1900, notwithstanding the enormous increase in population, it is reduced to 14,181! Now, this is a highly satisfactory result, and when we turn to pauperism, although the reduction is not so great in proportion, still it is important. For in 1887 the number of paupers was 993,838, while in 1900 it was reduced to 967,419. Now, we should naturally conclude that this was the beneficent result of the free education of the people, but such a conclusion would teach us the danger of arriving at a hasty judgment upon undigested premises, for if we cross the Channel into France we there disclose exactly the opposite effect, and we find that the introduction of the free education of the people has brought about a large increase in both crime and pauperism; and when we come to examine into the cause and effect of this great difference between the two countries we are led to conclude that it arises

from the fact that in one country the children are given religious instruction and in the other they are not.

This fact is in itself highly instructive from an educational point of view, because it teaches us that education *per se* may become a factor for either good or evil to humanity, according to the nature and form of its objective.

Now, whence comes this potent force of education which so dominates the actions of mankind? Let us take a unit of humanity as represented by a new-born child. What are the forces which are moulding this piece of soft clay—a very humid clay, it must be confessed—what are the forces which are moulding it into the adult man? We find that the child is already possessed with an individuality. This individuality has been created by the forces of heredity, of free-will and of environment acting upon a former life. So then we find that these three forces—these three factors of education—have connected the past with the present in the form of the child. And by deductive reasoning we are justified in concluding that these three factors of education will continue to act, and will connect the present with the future.

So then we realise that there is continuity in life. And now let us examine, somewhat briefly, the composition of these three factors of education, and first let us take the force of heredity.

Heredity is the habit of a former life, and we find that it is both physical and psychical. Physical heredity is the more wonderful when we consider that the substance of our body is constantly changing, although the form remains.

Every breath which we exhale transfers a portion of the tissues of our body to the surrounding atmosphere in the form of carbonic acid gas; the surrounding vegetation inhales and assimilates that gas; a passing animal, such as a sheep or an ox, feeds upon that vegetation and digests it, so what was part of our body has become part of the surrounding air, again part of the surrounding vegetation and again part of an animal, and it may return to us again in the form of mutton chops. Therefore, we can realise how intimately associated we are with the physical nature which surrounds us and of which we actually form a part, and we can understand that when the face of Nature changes there may be a corresponding sympathy of the emotions in a unit of humanity. But a still more wonderful thing in this physical heredity is, that the child may not only assume the form of one or other of its parents, but it may take the form of a progenitor many generations distant, and so we learn that physical heredity connects the past with the present in the form of the child.

And when we turn to psychical heredity it is equally wonderful.

I have said that the child is born with an individuality. It has inherited tendencies which may date back even to primitive man—nay, even further than that, to our simian ancestors! These inherited tendencies are recognisable from certain incidents of habit and custom in our daily life. For example, among others, the love of sport and the habit of keeping game until it becomes high are impulses which have descended to us from primitive man; again, the habit of placing the hand under the head in sleep and the prehensile power in the hands of infants connect us with our simian ancestors.

Thus we are able to recognise that there are certain traits culled from those of innumerable progenitors which may suddenly appear in any child through the force of heredity.

We can also recognise the heredity of mind which is transmitted to us through the medium of the printing press, so that a part of our environment is derived from knowledge acquired by units of humanity in past ages, and which thus becomes accumulative.

So then we find that the child is possessed with certain "motives" which have come to it by the force of heredity, and these motives are brought into contact with the forces of environment, and it is the addition of the force of free-will which determines the resultant both as to direction and magnitude.

But this mysterious power of free-will sometimes wanders and becomes lost in a maze of confusion, and then, like a child to its father, it appeals for assistance and direction to the Almighty Power who has been the cause of its being, and so religion enters as a regulating factor of education.

When we come to the force of environment we enter upon a very wide and important field. It is the development of the past into the present in relation to the future, and, like heredity, we find it both physical and psychological: the former from the physical character of the nature which surrounds us, the latter from the habits, customs, fashions, and spirit of the age of the society into which the child is born. And when we have studied the habits, the customs, and the fashions of different sections of society in various nations, together with their extraordinary contradictions, impulses, and eccentricities; and when after this knowledge and experience of the imperfections of humanity we attempt to specify the objective of society as a whole,—we begin to realise the extraordinary differences of opinion which exist among human beings, even as to what is pleasure and what is pain, and what is right and what is wrong; and we are constrained to the opinion that, so far, the human race as a whole has advanced but a very short distance towards a true knowledge of what the objective of education should be, and we begin to appreciate the magnitude of the potentiality contained in that one word "education."

But to return to our child.

We know that his individuality up to the adult age is more or less under the control of his environment; we also know that by the inculcation of the force of habit we can give direction and a tolerable degree of permanency to either the best or the worst instincts of the child. We also know that by the force of environment—which is partially under our control—we can cultivate some impulses and subdue others; we have been able to recognise the wonderful sources of, and the complications connected with, the individuality of the child; so, therefore, with all these *data* before us we are forced to the conclusion that, if we are to obey the directive command of “*excelsior*,” we must treat this complicated piece of human mechanism in a scientific and systematic manner, and that the first step towards that end must be to have a clear and definite idea of the character and form of our objective.

In forming our objective, we must be careful not to imagine a vain thing by conjuring up theoretical surroundings for the future adult, but we must bear in mind the actual forces of environment with which he will be brought into contact, and then use our best endeavours to prepare him for the contest.

Consequently we can readily realise that our objective should be to teach the child to observe, to reason, and to judge.

And now, although we are still within the realm of education, we step into the arena of “instruction.”

Locke has designated instruction as the least part of education, and we can recognise that it is but one factor among others as a means to an end.

But instruction naturally suggests the instructor, and realising, as I hope we do, the potentiality of education, I feel sure you will agree with me that it becomes a paramount duty of society to provide an effective organisation for the production of efficient teachers of the young.

It is certainly no exaggeration to say that teachers are, to a very large extent, the architects of the future character of the nation, and the time will surely come when society will recognise that the office of a teacher is one of the most honourable and most important that can be occupied by any human being.

In carrying out our objective of instruction it is of the utmost importance that there should be continuity in the scientific development of the growing brain between childhood and the adult age, and that in order to obtain our object we should fix upon some definite curriculum as the effective termination of secondary instruction. It seems to me that the rudiments of each of the subjects in this curriculum should be brought to the attention of the child at the earliest possible age through the medium of the Kindergarten, and they should be subse-

quently and continuously taught through the primary and secondary schools. By this means the forces of environment would be given time and persistency for inculcating a force of habit in the growing brain of the child, and thus to mould it into the form of the required objective. If there is any force in my argument, it can readily be realised that this scientific training of the mind should be the same for every unit of humanity, and that it should be considered as the necessary function of instruction for the adult before he is launched into the stream of society where he will choose his own channel of progress. It will follow from this postulate that the effective termination of secondary instruction has no reference to any special pursuit in life, but that it should be so far potential as to place the adult mind in a commanding position for applying its powers to the best advantage.

And now let us glance at the subjects of the necessary curriculum for reaching the objective of instruction I have indicated; and I may remark that I have tested the following curriculum by actual practice and experience during the six or more years when I was Minister of Education in British Columbia. I may state that the standard of education in that far-distant part of the Empire, both in the primary and secondary free schools, is of a very high order, and the intelligence of the children is very remarkable, especially of the girls, who generally rival and often surpass the boys.

When I left the Government in 1899, British Columbia devoted one-fourth of the revenue to education, and it was considered that a very high rate of interest was derived from that large expenditure. Even in the wildest parts of the Rocky Mountains, if there were ten children of school age—that is, between six and sixteen—within a radius of 2 miles, they were allowed a certificated teacher from the Government, free of expense: and if there were twenty children, they were given an excellent school-house in addition, with an allowance of £8 a year for necessities.

The curriculum, which had for its object the teaching the child to observe, to reason, and to judge, consisted of the following subjects:—

Hygiene and Agriculture.—To instruct the child in the care of its own body; in the constituents of food and its mode of production through agriculture—and we have the authority of some of the best writers of ancient Rome, showing that a knowledge of agriculture was considered an important factor in education.

Manual Training and Technical Instruction.—To train the eye and the hand, and to prepare the child to earn its own living.

Art, Science, and Mathematics.—In order to stimulate observation and cultivate the reasoning faculties and a knowledge of nature.

History and Geography.—As an insight to human nature and to a knowledge of the world.

Languages.—To cultivate the power of a lucid expression of a maximum of thought with a minimum of verbosity.

The teachers who had to administer this curriculum were of three classes, and could only obtain their Government certificates by a qualifying examination, and they were afterwards examined annually up to the first class.

It was my object to establish a Training School for Teachers, which would demand a three years' course of instruction, with annual examinations to mark progress. During this course of instruction marks were to be allotted, not only for the annual examinations, but also for aptitude in teaching and for gaining influence with pupils, and the total number of marks at the end of the whole course had to reach a certain standard before a certificate could be obtained.

I mentioned in the early part of my lecture that a unit of humanity cannot rise to a higher plane of "being" without effort, consequently in the struggle for existence we have to stimulate the free-will of the child into effort by the emotion of ambition exerted through the medium of examinations and also for the acquisition of benefits through the medium of competitive examinations.

I cannot see how we are to classify the mental *strata* of pupils without examinations, and I cannot see how we are to avoid the corruption incident to favouritism without competitive examinations—even though tainted with their natural corollary, "cramming."

Cramming is the forlorn hope of idlers, and as there will always be idlers, *a priori* there will always be cramming.

But I believe the evils of competitive examinations, and consequently of cramming, can be greatly mitigated by proper care and study in systematising the questions for examination, and this brings us to the consideration of examiners.

Quis custodiet ipsos custodes?

The situation is much complicated at present by the sort of mental conflict which goes on between examiners and crammers as to who shall get the better of the other, and between the two stools the unfortunate examinee falls to the ground.

The number of examiners who delight in "Chinese puzzles" is far too numerous, and some effective organisation for the supervision of examination papers is urgently needed. The examination paper should be educative in itself, it should form a graduated epitome of knowledge from the simple to the complex. In illustration of the incongruity of our Army examination system, I may cite the Woolwich course. A cadet enters the Royal Military Academy and starts fair in his studies with the

goal before him of a commission in the Royal Engineers. He is examined periodically during his course, and the marks obtained in each examination are placed to his credit for his final test. So far good. He passes through a series of graduated competitive examinations, which, if properly conducted, become educative and act as a healthy stimulus to exertion. But when the cadet arrives at his final test, it is then that his troubles commence. His examination papers now come from an outside and inimical source, and are pregnant with Chinese puzzles. No matter how well grounded in his subjects the cadet may feel himself to be, he is perfectly aware that there are ambushes lurking in those examination papers, and the strain of anticipated trouble keeps his nervous system upon the rack, and he perhaps fails, not through lack of knowledge, but from the fault of the ridiculous system of examination.

And now let me turn to that ancillary of education which deals with the preparation of candidates for commissions in the Army.

It is a subject in which I take the deepest interest, as I brought it prominently before the public as far back as the year 1861 with a view to utilising our universities as the principal channels of entrance to our Army. At the time I was in command of the Cambridge University Volunteers, and having previously served in the Regular Army in the Crimea, I was deeply impressed with the great advantages offered by a university education for incipient officers of the Army. Accordingly, I approached the university authorities on the subject with a view to establishing a special military degree, and with the request that they would use their influence with the Government in order that all candidates for commissions in the Army might be obliged to pass through one or other of the universities.

At first I met with strenuous opposition, especially from that renowned scientist Dr. Whewell, who was then Master of Trinity College, Cambridge; but afterwards, with his usual largeness of mind, when he understood the details of the scheme, he became one of its most ardent supporters.

At Oxford I met with a similar opposition, and, I am happy to say, subsequent conversion, from the late Archbishop of York, who was then Warden of Queen's College.

His Royal Highness the Prince Consort summoned me to Windsor for the purpose of discussing the subject, in which he took the greatest interest, and I was deeply impressed and instructed by the breadth of his views and his masterly grasp of the true principles of education. After thoroughly informing himself upon every point, he was good enough to assure me that the university scheme would have his cordial support, and he was just about to visit Cambridge on the subject when his lamented death occurred.

To make a long story short, all the universities of the United Kingdom agreed to establish a special military degree, and they approached the Government on the subject.

The university scheme now became the rival of that of Sandhurst, for it was in the year 1861 that it was first proposed to enlarge that college and to make it compulsory for all candidates for commissions to reside there for one year prior to joining the Army.

It seemed to me and to many others that with the assistance of a proper staff of Regular officers for the University Rifle Corps, all the advantages to be gained by a year's residence at Sandhurst could be equally obtained at the university, with a far greater educative environment; but I knew that if the vote in the Estimates for the enlargement of Sandhurst was passed by the House of Commons there would be no hope for the rival university scheme.

Accordingly, I brought all the influence possible to bear upon the university and military members of the House of Commons to induce the Government to withdraw the vote. Sir Charles Selwyn was Member for the University of Cambridge, and he was enthusiastic in the cause. We had a very powerful phalanx to oppose the vote, and I was in the House the day it was debated. After several speeches had been made on the subject, Sir Charles Selwyn came to us in great glee to say that the Government had consented to withdraw the vote, and then I felt that we had successfully stormed the position. But alas for the fortunes of war! A quarter of an hour later Sir Charles came to me again with the information that Mr. Disraeli—his leader—had just interviewed him to say that the vote must be allowed through, as it was found that half the money had already been contracted for with a view to the enlargement of Sandhurst. Thus our university scheme for military education came to an untimely end.

I am still of opinion that it would be the best possible education for entrance to the Army, and I am fortified in this opinion with the authority of the great Duke of Wellington.

In dealing with the subject we have to bear in mind three important factors in the problem :—

1. That the military candidates should have a thorough education on scientific principles, such as I have indicated in the early part of my lecture.
2. That a wide door should be left open for able candidates of small means.
3. That the best instruction in military exercises should be available for the candidate.

To be successful the scheme—like any other—would have to be thorough, and, to commence with, all the universities of the United

Kingdom would have to agree to establish a special military degree after three years' residence. The curriculum for this degree would be determined upon after intelligent consultation between the Government and the university authorities.

The minimum age for entering the Army would have to be fixed at 21 years.

Military instructors from the Regular Army would have to be appointed to the University Rifle Corps for the purpose of affording instruction in rifle shooting and military exercises, which would form part of the curriculum for the degree.

The Government would have to establish annually and under proper restrictions 200 open military scholarships of £150 a year each, tenable for 5 years, and to be competed for at a minimum age of 18 years. The holder of a scholarship would be entitled to a commission in the Army after he had taken a university military degree, and would be also entitled to count one year's military service. All other annual vacancies for commissions (other than these 200 annual military scholarship commissions) to be filled by the Government by selection from candidates who had taken a military degree at a university.

The curriculum for the scholarship examination should be intimately related to that of the university military degree, and these scholarships should be open to the whole Empire. And now I am bold enough to make a startling statement. In the curriculum for the university military degree which would become the standard of instruction for incipient officers of the Army, and to which public and private schools would have to conform as far as their military students were concerned—I would limit the languages to one, namely, English.

I would ask my audience to consider for a moment the amount of time devoted to dead and living languages, under the present system, by candidates for commissions in the Army, and then to endeavour to measure the *result* by supposing the following test:—

That an expert classical scholar, together with a native French and a native German scholar, were to visit every captain in our Army at the present time, and to test his colloquial powers in any of the dead or living languages, also his power to translate any of them into English, and *vice versa*.

I do not think I am wrong in saying that it would be found that, with the exception of perhaps 10 per cent. of the whole number of captains, the remainder would know little or nothing either of the dead or of the living languages.

I would, therefore, suggest that the time now evidently wasted upon languages under the present system should be devoted to the thorough training of the mind, under the curriculum which I have

indicated, so as to give it sufficient potentiality for dealing effectively with any problems with which it might afterwards be brought into contact. I would do away with the present irritating examinations for promotion in the Army, and in their place I would make it compulsory that every lieutenant before being permitted to obtain his promotion as captain should be required to pass a searching examination in French and German.

The result of this would be that an officer would frequently visit France and Germany during his terms of leave, greatly to his own benefit and to that of the Service.

We must remember that a similar system is carried out in the Indian Staff Corps, where it is obligatory to pass in Hindustani and in some other Eastern language after joining the Service.

As to the dead languages, excepting as a special study, I should like to see them decently buried and to be invited to attend the wake, and what a great wake it would be! I am not peculiar in this view; for I was told the other day by one of the best classical scholars in Great Britain and a late headmaster of one of our oldest public schools, that he considered the craze for Latin in the present day as a compulsory subject in education as lamentable and disastrous to the cause.

I regret that I am not at liberty to give his name, as the remark was made in private conversation.

The argument of my lecture has endeavoured to prove the paramount power of education in the evolution of the human race; that the main channel of instruction up to the adult age should be the same for every unit of humanity, and that the curriculum for its terminating examination should be the relative standard for primary and secondary instruction; that the objective of this curriculum should be to give potentiality to the adult mind for dealing effectively with any of the affairs of life; that instruction for any special pursuit of life should be ancillary to the main channel of instruction; that with regard to that ancillary which deals with the military problem, the universities offer the best field for secondary instruction on account of their superior educative environment; that the charge upon the public purse for university military education, such as I have indicated, would be a mere bagatelle as compared with the national advantages which would be gained.

In conclusion, pray allow me to thank you for the great patience which you have displayed in listening to what, unfortunately, is considered a very dry although a very important subject; and I close my lecture in the earnest hope that, with regard to that subject, I may have been permitted to awaken within you, individually as well as collectively, a realisation of that co-efficient of your free-will, the esoteric directive command of "excelsior."

Major B. R. WARD, R.E. (Professor of Military Engineering and Geometrical Drawing, Royal Military Academy, Woolwich) :—In this most interesting lecture that Colonel Baker has given to us he has alluded to the fact that the objective of education should be potentiality in taking part in the affairs of life. I think it is very important that that should always be kept in view, because we are very much inclined to lose sight of it when looking at any particular practical matter that happens to be under consideration. There is one particular, practical matter that I should like to allude to. It is one which Colonel Baker spoke of, namely, the inherent defect of the present system of examination at the Royal Military Academy. Colonel Baker gave you a short account of how a cadet had to get through the course, and how at the end of his time he had to face an outside examiner who had had nothing whatever to do with him before, and, indeed, had probably never even seen him before. That man has to set the cadet a series of questions which may result, as Colonel Baker expressed it, in a certain number of Chinese puzzles. That is perfectly true. It seems to me that in this particular case we might easily get rid of some of the evils inherent in that system by bearing in mind what the object of education and of employing outside examiners is. It is to get potentiality in taking part in the affairs of life. The bringing in of an outside examiner in this way does not make for that potentiality, but tends towards what we may call economic disturbance or nervous disturbance, and there is no doubt that it exercises a very evil influence in that direction. Why is this outside examiner used at all? I think the object of an outside examiner is to provide an outside standard to which the institution employing him can work up. In the case of the Oxford and Cambridge Local Examinations, for instance, I imagine that that is so. There is an outside educational tradition which keeps that standard constant and permanent. In the case of the outside examiners for the military colleges this is not so, and therefore it seems to me that the present system of outside examiners is a pernicious one, and one which does not hold up in any way the true objective of education. Surely it would be far better if, instead of an outside examiner being appointed who is not in touch with other previous outside examiners in the same subject, nor, in all probability, with the institution for which he has to examine, the examinations were conducted by the staff of the institution, which examinations should be under the inspectional supervision of the Inspector-General of Military Education and his staff. Some sort of continuity in tradition could then be kept up which is now absolutely wanting. Another evil, it seems to me, in the existing system of carrying on things at Woolwich is not only this sort of economic disturbance or nervous disturbance, but also over-pressure, due to the serious strain of competition. The practice of constantly posting up marks for candidates to see term after term tends to make them take up subjects merely in order to pile up marks, so that they may get in front of their competitors. If the examinations were more in the hands of the staff, if marks were not posted up, if equal or greater weight were attached to reports, I think a very large amount of the strain and over-pressure would be removed. I would, therefore, suggest as practical remedies for some of these evils, as seen at Woolwich and pointed out by Colonel Baker, that, in the first place, the examinations should be conducted by the teaching staff, under the supervision of the Inspector-General of Military Education; and, secondly, that candidates should not be allowed to see their marks, but that they should be placed in order of merit by the Governor and the Staff, not only on their marks, but also on their reports.

Mr. C. S. JACKSON, M.A. (Instructor in Mathematics, Royal Military Academy, Woolwich) :—I think one point in the lecture which must have commanded assent was the reference to the great importance of a good basis of general secondary

education before any attempt is made to specialise. I think that is of exceedingly great importance. Some people, who, I think, ought to have known better, have recently argued that all an officer wants is a formula giving him a rule, and that that will carry him through. I am quite sure that that is a fatal idea. It would be a very good idea if military subjects had attained finality; but although it is rash for a civilian to express any opinion on military subjects, I think I can express the confident opinion that the science of artillery has not attained finality, that the life of a formula may be measured by a few months or years, and that if you are going to train up your officers merely to a set of formulæ with nothing else behind it, you are training up people who will never advance a bit. A further point is that if when a man leaves Woolwich he does so with a firm determination that never again will he open a book if he can help it, then, however extensive may be the amount of information he has acquired, his education has failed. In regard to competitive examinations, the critical point is: Does the examination, at whatever cost in other respects, do what it professes to do? Is it possible to say that when one man has got 1,801 marks and another man has got 1,800 marks, therefore the first man is better than the second? I say that the test is not so accurate as the figures make out. It is a fact that recently a man was given an appointment because he obtained one mark in 1,800 more than another. In France and in Prussia no attempt is made to give marks at all in the entrance to the military school. Practically, they limit themselves to classing the candidates in sets of tens. They have given up the attempt to sub-divide into more than ten distinct classes. The same thing has happened at Cambridge, where the order of merit which was adopted for some years in the Classical Tripos has been definitely abandoned as being impracticable, and the candidates are divided into nine classes or sub-divisions. I say, therefore, that we must recognise that it is not possible to divide 30, 80, or 100 people into an exact, precise order of merit, and that it is incorrect to say that because one man has obtained 3,715 marks and the next man 3,714 that the second man is inferior to the first. That seems to show that much more importance ought to be given to the whole history of the candidates and to their marks and reports while under instruction. I therefore strongly agree with what Major Ward has just said.

Major E. C. HAWKSHAW (late R.A.):—I cannot help feeling some diffidence in rising to make a few remarks on the extremely eloquent lecture we have just heard. I have been through the Academy at Woolwich and I have commanded batteries, both mounted and dismounted, for 10½ years. With regard to the education of officers for the Army, I cannot help backing up in every way what Colonel Baker said. The fact is that the one object of young fellows when they try to go into the Service is to make marks in book examinations. In my last command in India, where I was in charge of a mounted battery, four fellows were sent to me who were "selected"; but they were the four most unsuitable men for the mounted branch of the Service that I had ever seen. They could not ride a bit, and as for getting a gun out of a hole or looking after a team when it was mixed up, such an idea did not enter into their heads. You may talk about education or anything else with regard to the Army, but until the system of confidential reports is changed the education is not of the slightest use. The Duke of Cambridge, under whom I had the honour to serve for a good many years, and to whom I had the pleasure of listening at some of our regimental dinners, always used to say, "I do not want your educated officer; what I want is a man of common sense." If we had only had a few men of common sense of late years who spoke out their minds we should have got on a great deal better in the British Army. As Colonel Baker said, if the candidates were made perfect in their own language before they went on to study

others it would be the greatest boon we could have, because it would develop their physical points and make them leaders of men, in addition to which the men would have confidence in themselves. A man ought to learn to shoot and ride and learn about horses instead of stuffing a whole lot of differential calculus into his head and things of that sort. The fact of the matter is there has been no system in the Army. The young fellows have never been taken in hand and taught. When I was at Woolwich 35 fellows out of 40 odd had never seen a horse; the remainder had been on one. I shall never forget our first ride as long as I live. To us the expression of a celebrated steeplechase jockey, "the captains were lying all over the course." Yet these boys were taken afterwards and set up as authorities on horses in the British Army after going through the riding-school for a short time. However, the only reason I rose was to draw attention to the present system of Army confidential reports and the "selections" for different posts, for it cannot be expected that any individual will go on working unless the recognition of services and knowledge is fairly distributed.

T. MILLER MAGUIRE, Esq., LL.D. :—I cannot refrain from rising to say a few words in regard to the very admirable lecture that we have just heard, but the lecture was so far-reaching that I could not even pretend to deal with one-fifteenth part of its points in the ten minutes to which I must confine my remarks. There is one thing we have been recently educated in, in regard to which we wanted a considerable amount of education, namely, the correlation of the different parts of our Empire to each other. How we came to be so ignorant before the outbreak of the war of 1899 of the possibilities of our Empire I quite understand, because those subjects of history and geography and our Imperial responsibility are neglected in our schools and deliberately excluded from our educational courses. Personally, I was taught many things—as the history of other nations, all about Conon, and Cimon, and Cataline, and Catigule—but I was never taught a single thing about Canada or Australia. As to our Indian and Colonial possessions, their inhabitants and potentialities, I had to go and cram myself at a comparatively advanced period of my life. This war has taught us many things outside tactics. It has taught us that there are such dominions as our Australian dependencies, not as distant ideas, but tangible powers closely connected with dearest interests. Mr. Seddon is now teaching us all this very strongly in South Africa. My own opinion is that a few men like Mr. Seddon are worth about 50 or 60 orthodox party officials, born in a degenerated social environment, and bred on Latin and Greek and the antiquated curiosities that pass for education. We have been listening to a gentleman who is not only a member of our own military force, but, such is the curious nature and wide-reaching development of our Empire, from being a soldier in the Crimea he has gone and taught the people of British Columbia, at the far end of the Canadian and Pacific Railway, how to educate themselves, and how to educate themselves very well indeed. I was really delighted to find that my labours this morning in reading Pankhurst's and Colquhoun's works were about to be rewarded by listening to a lecturer from British Columbia this afternoon. Just compare, as business men, the remarks of this gentleman with the twaddle which we constantly listen to about education in this country. Here is a lecturer who goes to the root of the matter, who begins with the child and the fact that that child is going to be a voter, one of the electorate, a man looking after the health of London or of Vancouver, a ratepayer, a man supporting a family, to be one of the 50,000,000 of people of our British race who is responsible not only for his own interests, but also for those 360,000,000 of the other races of the Empire. He wants that boy to be brought up to know something about

Nature—a thing home-bred children never learn anything about now—something about the woods, and the flowers, and the grasses, and the general aspect of the country—such attractive knowledge as the Romans used to learn when Virgil wrote his *Georgics*. The lecturer went to British Columbia and had the lads and girls taught all about the qualities of the country and the history of their Empire, and as many similar topics as he could on a sound basis. Take his first subjects:—Observation of Nature, and how to deal with one's own body. Is not that the kind of education we want? Is not that the very foundation of proper education? There is a difference between education and instruction: Education is bringing good things out of a man himself, while instruction means putting good things from other men into the man. He spoke about the education of women. You may deal with all these social and political questions as you please, *a priori* or from experience. The bed-rock of the whole structure of our State is the woman of the home and the family, and self-respect and respect for others and reverence. Without them, whether a man be a good-living man or a bad-living man, a rich man or a poor man, he is not worth a straw. As a member of the Kensington Vestry for 10 years I was brought face to face with the serious problems on which the future of our whole race depends, hence with the education of the poorer boys and girls in Kensington. It has been my duty over and over again to frequent the abodes of the sons of dishonour and of the daughters of shame. What is the cause of all their worst evils? It is the improper, the wrong education and training in their youth of the young women. If you could go and preach a doctrine whereby some 50,000 of our growing female children could be in due time turned into mothers fit for their duties, which are vital to the race, you would confer an immeasurable blessing on the British race. Coming to the instruction, everything depends on the teacher. But what is the position of the teacher in England? Who but a fool would become a teacher nowadays? I have employed the very best teachers that I could possibly get, and I was always ashamed at their position. I encouraged them, if young, to get out of it; to go to Australia, or to go to South Africa and get 5s. a day as new or old yeomen. Anything is more hopeful than the career of instructor, tutor, or governess under our despicable social conditions—our affectations, love of ease and snobbery. England is no place for a man to be a teacher in. Society despises education in England. A teacher has no social position in England. I myself have been, relatively to other barristers of my standing, despised for being a teacher. This is no place for a teacher or instructor, whether civil or military; and I say that after bitter experience, when I see, daily, men undertaking the very highest possible, the most important conceivable profession—the profession of instructor—and getting no thanks or reward, little pay, or anything else, whether he be a teacher in a public school, a private academy, or a military academy. This is a sad statement, but it is absolutely true. It has been circulated in the public Press of England within the last few days in connection with the report on education for the Army that the position in the British Army, which should be regarded as a most important one, the teacher or instructor of the subjects upon which the career and victory of our Army depends, instead of being regarded as most important, is despised. I could go on, but I begin to lose my temper when I think of these things. What I want to do, however, is to emphasise the importance of the vital truths set forth so well by the lecturer, who in his youth began by serving in the glorious Army of Great Britain in its time of adversity and misery in Russia, and ends by teaching the youth of glorious Canada in its very finest part—British Columbia—which, by the way, our silly politicians were very near handing over to another Power, but which was preserved as a great strategic position, not by the English politicians, but by the Canadian politicians. I compliment the lecturer, and I am proud of the

Empire in which a lecturer of such experience administered such an excellent system in so distant a possession.

Rev. A. E. RUBIE, M.A. (Head-Master, Royal Naval School, Eltham):—I only wish to second what Dr. Miller Maguire has so ably said. I do not think I have ever listened to a more instructive lecture on education from anyone, though there are very many who profess to be scientists in education. I cannot help thinking most strongly that if this is brought before the nation as the absolute, true, and scientific fact, that if you wish to educate up the rising nation you must really first of all settle what education should be, it will be for the benefit of the community. In my opinion, it should be settled that education should be precisely the same for each unit. I cannot help thanking the lecturer enough for having laid this down so boldly and so firmly, because it is an absolute protest against the modern spirit. As some of us schoolmasters know from sad experience, we are asked to specialise a boy, we will say, exclusively, in book-keeping and shorthand; the next boy exclusively in "heathen Chinese"; while the next boy wants to take the London Matriculation. The next boy wants to take the Oxford and Cambridge Higher Certificate, which again entails special subjects. Thus it goes on down the list, with the result—and I am not exaggerating the state of things, because I know it is felt by many other schoolmasters just as much as it is by myself, because we were discussing the matter only the other day at the conference in the county to which I belong—that you have absolute chaos in your time-table. The time-table does not matter—that is only a means to an end. But what you do have chaos in is the whole school. In plain English, you cannot educate at all. Possibly the Education Bill may do a little in remedying this state of affairs. What should be the aim and object of education if we can agree? That it should be absolutely the same whether a man is going to follow his profession in the Army or the Navy, or whatever his future profession is to be. Do let us act upon that. It would strengthen the schools of the country and the schoolmasters if we could say to parents: "This is agreed upon. This is the Government regulation." At the present moment we have pure and simple chaos. I am sure I am not alone as a schoolmaster in saying that. In conclusion, I wish to take the opportunity of thanking the lecturer very much indeed for having been so bold as to take a diametrically opposite line to what I might call the rubbish which is sometimes talked on the subject. There are many points on which I might join issue with him, but I prefer not to do so to-day. I should like to take up the cudgels a little for the dead languages, not, I trust, in any spirit of partisanship, but simply and solely because I hold that they are a means of training the mind. A man may forget all the Latin and Greek that he ever learnt in his life, but are they not a good means of developing thought? Is it not a good thing that a boy should learn such languages if he wishes to translate the thoughts of one language into the thoughts of another? Is it not a good training for the future taking up of languages which will be of practical use, such as German and French, that he should first of all have learnt to translate the thought of one language into the thought of another? I prefer, however, rather to agree with the lecturer than to disagree with him. I wish again to take this opportunity of most cordially thanking the lecturer, as a schoolmaster, for the very instructive lecture we have listened to; in other words, simply seconding what Dr. Maguire so very eloquently put.

Lieut.-Colonel BAKER, in reply, said:—In the first place, I must thank all those gentlemen who have taken part in the discussion for the very kind manner in which they have alluded to my lecture. Really there is left me very little to say, because very

few arguments have been raised against my contentions. I could not help being instructed as well as interested by what was said by Major Ward with regard to Woolwich, and by the arguments he brought forward for getting rid of the present evils of competitive examinations. No doubt what he suggested would do away with favouritism, also with the disadvantages of competitive examinations. With regard to favouritism, of course, we have to take into account the sensitiveness of the general public. Under the scheme he proposed, if it were to be assumed that all officers were corrupt, any scheme must fall to the ground, because the examiners themselves who framed the examination papers might come under the same category. I must say the scheme he has put forward seems to me to meet the difficulties with regard to Woolwich, and I hope the authorities may look favourably upon it. Mr. Jackson said he found that many officers who passed from Woolwich never looked at a book again, and I think that bears out what my friend has just said.

MR. JACKSON :—I was merely speaking hypothetically. I said that *if* when an officer left the classes he did so with the intention of never opening a book again, the system of education was wrong. I did not profess to state anything.

Lieut.-Colonel BAKER :—I am afraid there is a great deal of truth in the statement that many officers consider that the moment they get through their examinations their education is completed. Why! their education is only just beginning then. With regard to the education of officers after they pass into the Army, and the confidential reports to which allusion has been made, it seems to me that they are altogether "un-English." I would suggest that the colonel should be held responsible for the competence of his officers, and if he is not equal to the occasion he should be removed. The inspecting general should be able to devote sufficient time to discover whether the officers know their duties, and he should hold the colonel responsible. The officers should devote their time to the study of their profession, and the training of the officers of the Indian Staff Corps offers a good example to follow, as it is very much superior to the training of the Line officers in this country. In India the officers are well taught, especially in rifle-shooting, which is of paramount importance in connection with military education. The system of the Indian Staff Corps might well be copied at home. I have to thank Dr. Maguire for his remarks, which I much appreciate, because we know how deeply he has studied this question, and especially his intimate knowledge of the military problem; but I have not heard any adverse remark about the working of my university scheme. I believe that scheme would materially advance the secondary education of our officers, and would become the standard of education to which all the public and private schools would be forced to conform. It would also benefit our universities, and anybody who has ever been at a university must realise the wonderful educative effect of the environment there. The gain is not book-learning alone, but a knowledge of the world and of human nature, and I fully believe it would be the best possible education for our officers. I beg to thank you for the kind remarks you have made, and I hope some good may come out of this meeting.

The CHAIRMAN (Major-General J. B. Sterling, occupied the Chair, Lord William Seymour having been called away by duty at the War Office) :—I am sure I shall have the audience with me when I propose a hearty vote of thanks to Colonel James Baker for one of the most eloquent and well-delivered lectures which I have heard in this theatre. The subject on which he has lectured is not my hobby, and I know little about it. I have my own opinions as to competitive examinations, but it is difficult to find an alternative. The logic of comparative examinations is that the teachers

who presumably can answer the examination papers better than anybody else, will be the best person to hold the desired office, which, on the other hand, can be demonstrated to be false. Years ago I had a very interesting conversation on the matter as regards naval cadets with one of the most highly educated men in the country, George Trevelyan; we were talking about the qualification for entrance to the "Britannia," and he laid down without prejudice that it is absolutely unsound to jump to the conclusion that if one boy obtained 1,701 marks and another 1,700, the boy who obtained 1,701 was the better boy for every position; but he laid it down as absolutely true that if you take a large number of boys, say, 1,000, and send them up at a level age for a competitive examination, that the boys who passed in the first 500 were undoubtedly better physically and mentally than the boys who passed in the second 500. What is more, the authorities lowered the standard in the "Britannia" some years back, and they got boys of a lower standard. They raised it again, and on the whole the class of boys was improved. But the question is not affected, that it is by taking the boys in large batches that the best solution of the difficulty is obtained. Exceptional cases cannot be considered. *De minimis non curat lex*. I study the parallel columns in the newspapers, the one headed "Naval and Military Intelligence" and the other "Ecclesiastical Intelligence," but that circumstance confers no power of judging the wisest form of education for the one profession or for the other. I have been a soldier for more than 40 years, and I must accept the position that my trade is the best in the world, and I will not accept any comparison between it and another trade. But in this particular case of education which the author has brought forward, I am forced to hold my tongue, because I am not capable of giving an opinion; but what I can say is that the Institution is very much indebted to Colonel Baker for a very eloquent and very practical lecture, and one which I think will have far-reaching results. He is entitled to our sincere thanks, and these in your name I now offer.

PERSONAL REMINISCENCES OF A FREE STATE BURGHER DURING THE INVESTMENT OF LADYSMITH.

SUNDAY, 1st October, 1899.—Towards afternoon, as I was resting on my bed, my brother-in-law arrived and brought us the long-expected but terrible news that the commandeering lists were out. He had already been commandeered, and stated the orders were that all burghers had to prepare themselves to assemble at the "Oaks" farm on 3rd October. As I was quite ready I started the same evening with my wife and family for my brother's. We travelled by wagon and cart, the former carrying the household goods, eatables, etc. My idea was to leave my wife with her mother during my absence on commando. We did not then anticipate that the women would have to manage the farming operations during the war. Afterwards all the women remained at their respective homes.

Monday, 2nd October.—We started early in the morning for Styldrift farm, and hastily prepared to depart for the "Oaks," as everybody had now been commandeered. The pack horses and orderlies were sent on ahead. Now came the sad hour of parting. We were all very depressed. Father-in-law offered up prayer, and then we all said good-bye. Little did I imagine that I was kissing my dear child Paulje for the last time. Once on the way we felt in better spirits, and pushed on to our destination (the "Oaks"), arriving in the vicinity the same evening. We slept on the veldt, this being our first night on commando service. We then mustered only twenty. In opening a tin of sardines I cut my hand severely and managed to get the blood all over my blankets, the night being dark.

Tuesday, 3rd October.—Reached the "Oaks" at 9 o'clock this morning. A large number of burghers with their wagons were already on the spot, but our commandant (C. J. de Villiers) had not yet arrived. We each received a waterproof sheet, a round tent being allotted to every ten men.

At 3 o'clock this afternoon, Commandant C. J. de Villiers turned up, mounted a wagon and introduced to us Commandant Prinsloo, of Winburg. Speeches were then made by Commandant Prinsloo and Jan Meyer, member of the Volksraad. Twenty-five burghers were then told off for patrol

duty, including J. van Wyk, P. Lourens, H. Pienaar, H. van Wyk, and myself. Gert Wessels was our leader. We proceeded to Tantjesberg, which we reached at 3 o'clock the next morning. On the way there we off-saddled at Wilgeriver (Murphysrust). We then slept for a while, and towards daybreak started climbing the mountain. This I found very fatiguing, the mountain being very steep. We had now passed more than two days in the saddle, and this added to our discomfort. The night after we left the laager another patrol of 105 men were despatched to Nelson's Kop, and passed us on the morning of the 4th October.

We had a fine view from the top of Tantjesberg, and the panorama which unfolded itself was a treat to behold. A friend and myself could not resist the temptation of firing a few shots to see how accurately we could judge distance, but this nearly got us into trouble, as the shots were heard by the other patrol. The whole laager now moved to Tantjesberg, where Paul Prinsloo was elected laager commandant.

The laager was drawn in circular form, the pole of one wagon being placed underneath the other. In the evening all the cattle were placed in the laager, whilst the horses were fastened to the wagons. Sentries were posted all round the laager, each one receiving the countersign. The first night everybody in the laager, Kaffirs included, knew the countersign, but afterwards only the sentries were made acquainted with it, which was the correct course, I think. This was our first experience of sentry duty. We were placed 100 yards from the laager and 100 yards apart. We were all very inexperienced, and the lack of organisation was apparent. I thought of having a little fun during my watch, and stealthily approached one of the other sentries (an old man) and shouted "Who's there?" He roared back (seemingly in great terror) "Pypsteel!" This was the countersign.

As no chief corporal or corporals had as yet been appointed, the selection of sentries for night duty was very irregular. False alarms were very frequent and caused a good deal of unnecessary annoyance. For instance, a large patrol was sent to Nelson's Kop to capture the enemy's spies who were supposed to be in hiding there. We also went. At the foot of Nelson's Kop we off-saddled and then climbed the mountain, but found nothing. It was very tiresome work. A dark night followed causing one of our patrols to get lost. Field-Cornet Lyon had to ride about blowing his whistle, and eventually succeeded in getting all his men together again. Shortly afterwards some amusement was caused by a falling star being mistaken for an enemy's rocket. The result was especially disastrous to the little Kaffir orderly of Hendrik, van Wyk Pick by name, who had in consequence to be supplied with a pair of new trousers the next morning.

The following day we returned to the laager. Hans Potgieter became seriously ill *en route*, and had to be conveyed in a cart which we

managed to borrow from old Piet Uys. On arrival at the laager we found it in a state of considerable excitement. It appeared that an old Hollander named Berghorn, who acted as secretary to Field-Cornet Lyon, had been left in temporary charge. He was under the influence of liquor, and informed the burghers that not only had the enemy sent up a rocket during the preceding night, but that cannon shots had been actually heard. He also informed us that Field-Cornet Lyon had been surrounded and ordered all available men to proceed to his relief. We prepared to comply, and had already saddled and mounted, when, fortunately, our commandant appeared on the scene and promptly cancelled the order. A patrol was then sent to ascertain the real facts. It turned out to be another false alarm.

Nelson's Kop is now constantly occupied by outposts, also other points. Our laager has been shifted, and we are now camped between Nelson's Kop and Tantjesberg, on the Uitvlugt farm.

Wednesday, 11th October.—To-day we received instructions to prepare rations for four days and then to proceed to take possession of the passes on the Drakenberg. We accordingly started at 10 a.m. After having gone some distance the commando was ordered to halt and form in semi-circle. The commandant addressed the burghers and Mr. Samuel Odendaal offered up prayer. It now became clear to us that things were commencing to assume a serious aspect. *En passant*, I must here mention that a few days since my aged father turned up unexpectedly at the commando. I met him with mingled feelings. Although pleased to see him, I felt sorry for the old man, as I knew he could not stand the wear and tear of commando life. We succeeded in inducing him to stay with the wagons.

The Vrede commando having joined us, we occupied De Beers' Pass. A patrol in which I was included was immediately ordered to proceed in the direction of Van Reenen's Pass. We were under Tom Schoeman. A terrific hailstorm overtook us, followed by dense fog. This caused us to lose our way. The other patrols were in the same plight. When the fog cleared the next we were scattered all over the berg, but eventually we got together again, and the Harrismith commando was then transferred to Klipgat farm, near Collin's Pass. The Vrede commando remained in occupation of De Beers' Pass. We have now to patrol the mountain as far as Brandon's Pass, including Gunter's Kop and Collin's Pass.

Tuesday, 17th October.—Commandant de Villiers to-day mounted a wagon and informed the burghers that instructions had been received to invade Natal. All burghers were ordered to provide themselves with ten days' provisions and to be ready to leave at a moment's notice. We were further instructed to nominate the burghers who would have to take the

place of any officer falling in battle or being otherwise disabled. The following were elected:—P. J. C. Maree, Assistant Commandant; and Christoffel de Villiers, Assistant Field-Cornet, both for Ward Molenriver. Jacobus J. de Jager was elected Assistant Field-Cornet for Ward Harrismith.

Some sensible burghers were dissatisfied with the decision to invade Natal, considering it a piece of foolhardiness. But martial law had been proclaimed, and the burghers were of course powerless in the matter, having to obey the commands of their officers.

Everybody now proceeded to get their accoutrements in order, and the baking of "stormjagers" (cakes baked in a frying-pan) was the order of the day. As soon as everything was ready the bugle sounded the "Opzaal" (saddle). I was rather in a bad humour, as my horse wanted shoes, the smith having been too busy to put them on. Besides, my faithful orderly, Dubuzita, was taken ill. On questioning him, however, he signified his willingness to accompany me down the berg. On the commando being assembled, words of encouragement were addressed to us by the older burghers, and the Volkslied was sung, Brother Inguans accompanying on the cornet. Hermanns Potgieter and Jan van Wyk were both told they could stay on the berg, but refused. At 3 p.m. (17th October) we started on our march to Natal *via* Van Reenen's Pass. Before reaching latter we were caught up by Jan Meyer, Volksraad member. It was very praiseworthy of him to do so, as owing to his position as Raad member he is exempt from military service. But he seems keenly alive to the grave responsibility resting on the shoulders of the Volksraad members. Alas! the Raad members who made the most noise in the Volksraad were conspicuous by their absence on commando. In the evening we camped near Van Reenen's Station. A Krygsraad (council of war) was held, and Commandant Prinsloo of Winburg was elected Hoofd Commandant of the Natal division of the Free State forces.

Wednesday, 18th October.—At 10 a.m. we started by the large wagon road down the Drakenberg. We reached the foot of the mountain without mishap, and bivouacked on the Sandspruit for the night. At day-break next morning our commando was divided. Field-Cornet Pretorius, of Ward Harrismith, and Field-Cornet de Beer, of Harrismith Town, with their men, took the direction of Bester Station, whilst Commandant de Villiers, with an escort of five men, proceeded to the farm of P. du Plessis to meet Commandant Nel, of Kroonstad. (Simultaneously with us, the Kroonstad, Heilbron, and Bethlehem commandoes had moved down the berg at Tintwa and Bezindenhout's Passes.) Reports had also to be sent to Commandants Nande and Steenkamp, of Bethlehem and Heilbron respectively. By pre-arranged plan the Commandant lighted the

grass after having left us for some time. This was the signal to "opzaal." We were soon on the way, proceeding by main road in the direction of Bluebank, later on deviating to Sandspruit for the purpose of watering and feeding our horses. While off-saddled here we noticed a messenger racing towards us from the direction of Bester's Station. It was a report from Pretorius and De Beer that they were in touch with the enemy, and were fighting near Bester's Station. The order to "opzaal" was immediately given, and in little or no time we were all racing towards Bester's. As the distance was nearly 6 miles, our horses were somewhat exhausted when we arrived on the scene of action. On reaching a kopje held by some of the burghers we found that one of our men, Fred Johnson, of Harrismith, had been shot. Zacharias de Jager and Jan Lyon now called for volunteers to storm the enemy's position. As I am a heavy weight and my horse was tired, I did not see my way to go. However, 23 men volunteered to charge the enemy, and quickly succeeded in dislodging them from their position. They took one prisoner. While this party was attacking the enemy on the left, Assistant Commandant Maree and Jacobus de Jager asked for volunteers to charge the enemy's right wing. We were too late, however, as the enemy had already left their position when we got there. They fired on us with a Maxim at long range. We then charged the station. Here we found the camp of the Natal Carbineers deserted. The fires were still burning and the food cooking. We found many useful articles in the camp, such as food-stuffs, forage, horse-shoes, nails, blankets, etc. I succeeded in securing a pair of horse-shoes and some nails for my horse's front hoofs. I intend having him shod as soon as opportunity offers. We broke the rails, but Field-Cornet Lyon gave instructions that we were not to destroy anything at the station. We then left the station and went up the hill, from the top of which we had a good view of the surrounding country. We camped for the night on the nek north-west of Bester's Station on the railway line. We also removed some rails here. Commandant de Villiers, who had left us at Zandspruit to meet Cornet Nel, now rejoined us. He had a cannon placed in position on the hill and ordered a few shots to be fired at the camp of the Carbineers at Klipkraal, about 3 miles distant. That night we slept in the high grass without water. No sentries were put out. I was extremely tired and sleepy. I forgot to mention that the Winburg commando had joined us at Sandspruit on our way down to Bester's Station the previous day. But our commando led, consequently the Winburg men did not assist in the fight. This also applies to the Vrede commando, which had now joined us. Theunissen and Lombard were commandants of Winburg and Vrede respectively, whilst Commandant C. J. de Villiers, of Harrismith, acted as fighting general. After we left Bester's Station it was visited by the

Winburgers, who looted everything they could lay their hands on. The following night I slept as well as if there was peace on earth. But in the morning I discovered that my spurs had disappeared. They were never found again. When night came on again we hobbled our horses. I found that Mick's (my horse) front hoofs were worn through. Fortunately I met Fanie Sands, who agreed to shoe my horse. When this was done I felt satisfied. It cost me 2s. 6d.

Thursday and Friday, 19th and 20th October.—Nothing of moment occurred on these dates. Our horses are getting poorer and forage is scarce. Brother Philip and Dubuzita went to the deserted camp of the Carbineers at Klipkraal and returned with a small field tent and some lucerne. The horses would not eat the latter. Everybody was on the *qui vive* during the night to get mealies for their horses.

Saturday, 21st October.—At 3 p.m. this day we heard heavy cannonading, and on climbing the hills near us we could discern that it was at Elandslaagte. The firing continued till dark. The ordinary burghers did not for some considerable time find out how things went at Elandslaagte. Raining heavily. The Carbineer tent came in very handy, as our little brown one was useless. Field-Cornet Lyon has met with an accident, and is unable to ride. This seems a great pity, as he is a very smart and able officer.

Sunday, 22nd October.—A party of men, including myself, were told off to go on patrol. We attended divine service before starting. Commandant de Villiers again addressed the burghers, and as he seemed in a very serious mood we thought something was about to happen. We inquired whether we should take our pack horses with us, but Field-Cornet de Villiers informed us this was not necessary as the patrol would return to the rendezvous. After we had gone about three miles, Commandant de Villiers was called back to Bester's Station. We were instructed to go on to Mr. Allison's farm and to await the Commandant's return there. As night came on and we were without blankets eight men were sent to the camp to fetch our pack horses. The next morning early we received a report from Assistant Commandant Maree stating that Commandant de Villiers had instructed him to despatch 200 men belonging to the Vrede, Heilbron, and Winburg commandoes, accompanied by one gun, to take up a position ahead of us, as an attack was expected. I was glad that we were not ordered forward as my horse was very poorly. The column mentioned did not, however, pass us until the afternoon of the 23rd October. The ambulance followed same day.

On Tuesday, 24th October, we were sitting on the top of a hill on outpost duty when we heard the report of our cannon. This was followed by five or six shots, and then we heard the enemy's guns returning the fire.

It was clear that a battle was imminent, and on approaching nearer we found that the fight had begun.¹

Zwartboois kop and the country around seemed ablaze (the shells had set the dry grass on fire) and shells were flying all about. The whole place seemed turned inside out, and we doubted whether anybody was alive in front of the enemy's fire. The fighting continued until 4 p.m., when we noticed that the enemy was withdrawing and falling back towards Ladysmith.

A terrific thunderstorm now broke over us, the rain coming down in torrents. No tidings received yet of the result of the fight. Judging from the view we had of the battle, we were under the impression that our people had suffered severely. Three men, named Steenkamp, Roos, and van Rooyen, were killed by lightning on a kopje adjoining the one occupied by us. At this juncture I could not help ventilating my feelings. I openly told Assistant Commandant Maree and other leaders that the vengeance of the Lord was being meted out to us. Our cause was righteous, but we had made it unrighteous by crossing our boundary and invading other territory. It was also in conflict with the terms of the "Closer Union" convention between the two Republics. Commandant Maree called me on one side, and in the presence only of a few sensible burghers told me there was a good deal of truth in what I said, and that mistakes had been made. Things having gone so far, however, he asked me to assist in establishing concord and unity amongst the burghers and to suppress obstruction. After all he was right, under the circumstances, and it decided me to remain silent in the future.

Very heavy rain fell during the night, and the country seemed swamped next morning.

We only now received an accurate account of the fight. It appears the enemy retired with considerable loss. On our side (including one died of his wounds) 10 killed and 23 wounded. Of the Harrismith commando 1 was killed (Jan Papenfus) and 4 wounded, viz., Jacobus de Jager, Jan Cronje, Marthinus Roberts, Johannes Caalsen. Notwithstanding my conversation of the previous evening, I now felt thankful to the Lord for having guarded our men in battle, as our loss was so small. The burghers were now all hungry, wet, and cold, and had a hard time passing the nights in their wet clothes. The commandoes remained in the hills where the fight took place until Saturday, 28th October. On this date we moved nearer Ladysmith, halting on the farm of Gert Potgieter on the Sandspruit. We took up positions here and selected sites for the guns. About 11 o'clock our guns opened fire on Tin Town Camp and the adjoining hills. The day passed without mishap.

¹ Sir George White's action of Rietfontein.

Sunday, 29th October.—To-day we observed the ascent of a balloon from Ladysmith for the first time. It is very aggravating to behold the enemy scouting in the air. This day also passed without any further adventure. We were glad to receive bread rations at Commandant Theunissen's laage r.

Monday, 30th October.—At daybreak heavy rifle firing heard in direction of Nicolson's Nek, or "Little Majuba." Later heavy bombarding was heard from Modderspruit to Nicolson's Nek. The Free Staters, mostly men belonging to the Bethlehem, Kroonstad, and Heilbron commandoes, were engaged at Nicolson's Nek, while the Transvaalers were chiefly fighting Modderspruit way. About 11 o'clock the firing ceased on the Free State side, where we were successful. As is generally known, our men took 817 prisoners, 1 mountain gun, 1 Martini-Maxim, and 1 Maxim loaded on a mule. The mule bolted in the direction of Ladysmith, and had to be shot to ensure the gun falling into our hands. I do not know particulars about the Transvaal side of the fight.

From Tuesday, 31st October, the burghers began occupying positions round Ladysmith with a view of besieging the town. The Harrismith commando started as soon as darkness fell, following the course of Sandspruit. The idea was to cross a drift higher up that stream. Our force was composed of 1,200 with two guns and ammunition wagons. We had a rough time of it during the night. It rained incessantly, and the cannon stuck continually, causing great delay in the movement of the commando. The darkness enhanced our troubles, and after crossing Sandspruit about midnight we discovered that a few of the men had lost their way and became detached from the main body. We rested afterwards, holding our horses all the time. About 3 o'clock next morning we made a fresh start in a continuous downpour of rain. At sunrise we stopped at Hutten's farm and prepared breakfast.

Wednesday, 1st November.—At 10 a.m. we continued our march in direction of Colenso. All well so far. Our scouts are out ahead and all round us. At Onderbroekspruit we delayed for a while to enable the scouts to examine the hills between Ladysmith and Colenso. We soon heard shots, and noticed one of the patrols racing down a hill towards us. We immediately pushed on and learnt that two of our scouts had been wounded, Isaac du Plessis and Jacobus Swart, the former severely. We came across the dead body of a British soldier lying in the roadway. Making a slight deviation in our course, we off-saddled near a spruit to rest our horses. The Commandant wanted the hills thoroughly examined before proceeding further. My horse (Mick) became sick here. Fortunately father had a spare horse to give me, otherwise I should have been stranded. Making a start again, we pushed on to occupy the hills in the vicinity of Pieters Station, and after some trouble a suitable spot

was selected for our camp. The Rev. Kestell, who accompanied us, held divine service in the evening, and read a few war reports.

Thursday, 2nd November.—While we were engaged in slaughtering an ox, one of the enemy's guns opened fire on us. We were compelled to leave the animal half skinned and assist to get our cannon in position on a prominent hill. Meantime the Winburgers had their gun ready and promptly returned the enemy's fire, soon silencing them.

Two spans of oxen failed to take our cannon to its appointed place, but a large number of burghers then tackled the trek gear and soon placed the gun on the top of the hill. We also built three forts for the gun.

Field-Cornet Lyon, having now recovered from his indisposition, left with a small force to break the railway line at Pieters Station, our gun being now in a position to assist, should need arise. He succeeded in his mission without any mishap, but in returning by a circuitous route unexpectedly came across a patrol of the enemy, who were hidden in the bush on the opposite side of the Tugela. A sharp encounter ensued, the enemy being greatly assisted by an armoured train which stopped at a spot sheltered by a hill, and thus out of sight of our gun. The firing, principally from the armoured train's Maxim, got too warm for our men, and as besides it was getting late, they retired on the camp. One burgher was slightly wounded, and a Kaffir (H. Louren's orderly) killed. In the evening I was included in a party of night guards on one of the hills. We took our blankets up and the servants brought us our dinner, consisting of cold meat, "stormjagers," and coffee. We were very hungry, this being our first good meal for some time. Acting Commandant Uys, of Heilbron, was in command of our party, and was a very congenial companion. He gave us his experiences of the Nicolson's Nek fight, and how his son fell there on 30th October.

Friday, 3rd November.—We were told off to go on patrol duty to the Tugela. The patrol consisted of 50 men—25 each from Field-Cornets Lyon and Pretorius. After proceeding some distance we heard heavy firing in the direction of Ladysmith. As soon as we had executed our order we hurried back, but on reaching our commando we heard that the fight was over, and that the British force was returning to Ladysmith. The Heilbron commando bore the brunt of the attack. On our side only one man (P. van de Heever) was killed, but the number of wounded is unknown to me. One soldier was taken prisoner.

Sunday, 5th November.—I forgot to mention that Philip Pienaar and I brought two buckets of flour (in a bag) from Pieters Station the other day. This morning we intended having porridge for breakfast; but imagine our consternation when we discovered that the valuable loot we so diligently carried on our horses was nothing else but lime!

We had no porridge for breakfast. Field-Cornet Lyon informed us that Colenso had to be occupied to-day, but many burghers demurred to operations being conducted on the Sabbath. Eventually he asked for volunteers, and soon left with 30 men. I also went. We found Colenso unoccupied by the enemy. Everything seemed quiet and peaceful, so we entered the shops and took such articles as we required. Some of the men came across musical instruments, and were just beginning to make merry, when an armoured train arrived on the scene and soon dispersed the picnickers. I never before saw such a race for dear life: some of the men had no time to cross the bridge, but simply dashed through the Tugela below, but somehow got safely away from Colenso. On returning to the laager we were informed that orders had been given that Colenso was to be taken with a larger force next day, and that the railway was to be destroyed.

Monday, 6th November.—As arranged, almost the whole of our commando left for Colenso this morning taking one gun and two wagons with them. As soon as we reached the hills opposite Colenso on this side of the Tugela, our cannon opened fire on the village and also at Fort Wylie. At the same time we were ordered to storm, which was done successfully, there being no enemy visible. A portion of the commando went some distance beyond Colenso to break up the rails and sleepers on the railway line, whilst the majority of the men remained in the village and helped themselves to whatever articles they found useful. We returned to the laager in the afternoon with two loads of food-stuffs and grain. It was a terribly hot day and we had to off-saddle half way to refresh man and beast. We had a few bottles of over-proof rum, found in Colenso, and emptied these in a small bubbling fountain to improve the water for drinking purposes. Many of the men only then discovered that they had unquenchable thirsts on them. We christened the spring "Rumfontein."

Nothing of importance occurred on the 7th November.

Wednesday, 8th November.—On this date we received instructions to occupy a hill nearer Ladysmith, opposite Platrand.¹ We did so, and afterwards the field-cornet made us take Middle Hill (nearer Platrand) as well. The latter is only 1,400 yards from the British positions on Platrand and the Khâkis gave us a very warm reception on the first day. We had taken a position at the extreme end of Middle Hill, and while smoking and chatting a warm fire was opened on us at 3 in the afternoon, and although we briskly returned the compliment we were unable to leave our positions

¹ This is the long ridge of which the southern portion is called by the English Cæsar's Camp, the northern portion Wagon Hill.

to return to the laager until dark. One of our men was slightly wounded in the leg.

On returning to the laager in the evening orders were given to storm Platrand the next morning (9th November), but during the night a despatch arrived from General Joubert cancelling the order, owing to one of our big guns (a Long Tom) not being ready yet. Afterwards the plan appears to have been abandoned.

On the 9th November our laager was pitched about a mile away from the hill we were occupying, as the grazing was better there.

The next day (10th) we again visited Middle Hill. Father-in law, Jan van Wyk, Swart, and I made ourselves comfortable under some big trees. We could not enjoy a smoke in the shade, however, for the Khâkis discovered us and bullets were soon whistling all round us. At first we did not heed these much, but upon one of our horses being shot through the jaw we thought the time had arrived for us to trek back to the laager. That evening we again heard rumours that Platrand would be stormed, but these were not confirmed. The Vryheid commando, through a mistaken order, endeavoured to seize Platrand on 11th November, but they had soon to retreat, losing two men wounded. Our ambulance went for these men and found them at Bester's Farm.

Saturday, 11th November.—P. van Wyk obtained leave to-day to visit his farm in the Free State.

It is getting very monotonous now. The daily routine may be described as follows: From early morn until late in the afternoon our guns bombard Ladysmith, the British guns replying vigorously. Sometimes it is arranged that all our guns shall fire simultaneously into the town at midnight.

Tuesday, 14th November.—The balloon, which ascends every day, made a very sudden descent to-day. Shortly afterwards the enemy moved out of Ladysmith in the direction of the Bethlehem and Vrede commandoes with a battery of guns and a mounted force. A heavy bombardment followed from both sides, but only lasted about an hour. The enemy then returned to Ladysmith. One of the Vrede men, De Jager, was killed. The burghers are now commencing to get troublesome, and are all applying for leave to visit their farms, but principally to see their wives and sweethearts. Several have been granted leave, including P. Lourens, W. Pienaar, H. Potgieter, and J. Nande. We are longing for peace.

Sunday, 19th November.—Father, H. van der Watt, and I to-day visited some friends stationed at the Tugela. On our return (21st November) we rejoiced to find that our wagons had arrived from the Free State. We shall now be in clover. We have a fine mattress and bed in the wagon-tent, and the wagon contains plenty of forage for the horses as well as eatables and other things.

Thursday, 23rd November.—Papa, van der Watt, and I visited the Bethlehem laager to see some friends. We were hardly there when a troop of cattle were seen coming from Ladysmith in our direction. A party of the Bethlehem men cautiously approached the cattle, which were apparently well guarded. After a sharp encounter with the guards they managed to capture 262 oxen, bringing some safely into the laager. The men were very plucky, as they were also subjected to a severe fusillade from the British guns. I was glad to meet the Rev. Viljoen here. He returned with me to our laager in the afternoon. Sad tidings were awaiting me. On opening a wire from my wife I was distressed to learn that Paulje, my youngest boy, was dangerously ill and not expected to recover. I took the telegram to Commandant de Villiers and asked for leave. The commandant expressed sympathy, but stated it was not possible to comply with my request. The same afternoon just as we were returning from the fort we had built for our Long Tom I met Wessel Cronje, who had arrived from Harrismith, and learnt from him that the dear little boy, to whom I was deeply attached, was dead. He was born on 10th October, 1899 (President Kruger's birthday), and with His Honour's consent was named Paul Kruger. I also received a congratulatory letter from His Honour on the occasion of the child's christening. I was proud of the boy and in great hopes that he would grow up a great and good man, emulating the example of his famous namesake. I can only find consolation in the words of Isaiah lv. 8-9:—

"For my thoughts are not your thoughts, neither are your ways my ways, saith the Lord.

"For as the heavens are higher than the earth, so are my ways higher than your ways, and my thoughts than your thoughts."

On Sunday, 26th November, I obtained leave to proceed to Smith's crossing for the purpose of despatching a telegram to my wife. Jan van Wyk accompanied me. On passing the Bethlehem laager we found them packing their wagons, as they had been ordered to Cape Colony. We visited Chief Commandant Prinsloo and had a splendid dinner, even pudding. Returning towards evening we had a refreshing swim in Sandspruit, being joined there by Hendrik and Bernard de Villiers. We all returned to the laager together. H. de Villiers brought a despatch from the chief intimating that Bethlehem should proceed to Cape Colony instead of Harrismith commando.

Monday, 27th November.—Having completed the earthworks and platform for Long Tom, we were sent to Heilbron laager to fetch the gun.

Tuesday, 28th November.—Got Long Tom into position, but after firing five shots, the platform gave way. Sent to Pieters Station for railway sleepers to erect another platform.

There are again rumours that Platrand is to be attacked. We do not now like the idea. At first we were anxious to take it, but we fear it is now too well fortified, the enemy having had so much time.

I had the pleasure to-day of escorting two ladies to see the guns and positions. One was Mrs. Uys, whose husband fell at Nicholson's Nek. After I had shown them everything we returned to their cart. Just then the boom of a big gun was heard from the enemy's lines, which came as a complete surprise to us, but the shells caused a still greater surprise, for they soon silenced our Long Tom. The ladies referred to fortunately just left in time to escape the shells of the British big gun, which we surmised to be one of the ship's howitzers.

The Krygsraad held a meeting to-day and resolved to attack Platrand at 2 a.m. to-morrow. We were not at all keen to attack, in view of the fortifications erected on the hill, and the big guns also frightened us a bit. However, we at once commenced to make our preparations for the attack. The Johannesburg police arrived from their laager on the other side of Ladysmith to join the Harrismith commando in the proposed attack on Platrand on the following morning. The same evening another Krygsraad was held, and when the burghers rose about midnight to commence the march to the point of attack they were told to go to bed, as the Platrand attack had once more been abandoned.

Early on the morning of 1st December the enemy's big guns as well as a Q.F. gun opened fire on our Long Tom, silencing it completely. But for the strong fortification in which it was enclosed, our big gun would have been smashed to-day, so severe was the enemy's fire directed at it.

We must have some traitors amongst us, as it seems wonderful that the British should so soon have located our Long Tom. It certainly took them some days to prepare a position for their howitzer, and it seems strange how soon they were ready to pay our Long Tom in his own coin.

Our commando has now been better and more systematically regulated. Barend Oosthuizen has been appointed laager commandant in the place of Paul Prinsloo. Piet Hinnie is appointed chief sanitary officer, his duties being to see that everything is clean in, and a certain distance round, the laager to prevent illness. Charlie Howell to be chief corporal of Field-Cornet Lyon's men. A corporal has been elected for every 25 men by the men themselves. The new arrangement is that, in the event of a certain number of men being required at a given point, the commandant gives the necessary instructions to the field cornet and they are handed down in turn to chief corporal and corporals. The chief corporal generally selects a certain corporal with a portion or all his men for duty, according to the requirements.

Japie de Villiers being now stationed on the Boschrand on the other side of the Tugela, Jan van Wyk has been elected assistant field-cornet in his place. Our commando comprises 5 field-cornets and assistant cornets as follows :—

For Town Harrismith—Z. J. de Beer, field-cornet; J. A. van Rooyen, assistant.

For Ward Harrismith (1st)—G. P. Pretorius, field-cornet; M. Maritz, assistant.

For Ward Harrismith (2nd)—San Odendaal, field-cornet; Japie de Villiers, assistant.

For Ward Molenriver (1st)—J. T. Lyon, field-cornet; C. de Villiers, assistant.

For Ward Molenriver (2nd)—Job. Loots, field-cornet; C. Meintjes, assistant.

As Field-Cornet Lyon has the largest number of men under him, our field-cornetcy is often required to fill up gaps when the other officers are short of men for night duty, etc. By a new division of labour we are now enabled to sleep in the laager two nights in a week.

I must digress for a while to explain how father again joined our commando after having been left behind on the Drakenberg. He met us at Gert Potgieter's farm on 29th October last, and it astonished me that an old man of his age should be so keen to share our troubles. Commandant de Villiers shared my feelings, remonstrated with the old man and endeavoured to dissuade him from remaining with the commando. But it was all useless. He would not leave us.

The Rev. Kestell also joined us on 29th October last, and has been with us ever since. Besides administering divine service to the burghers, he has made himself extremely useful in attending to the wounded, especially in the case of Isaac du Plessis. He has cheerfully shared all our hardships.

To continue with the officers: We have also a corporal for the ammunition. He has a few men under him. These are usually selected from the lame and crippled, who are physically unfit for active service. Their duties are to guard the ammunition wagons by night and day.

The other night about 11 o'clock the night guards reported that the enemy were moving out of Ladysmith. We expected something of the kind, as we saw Buller's search-lights playing in the direction of Estcourt every evening and did not know what they meant. There were great commotion and confusion in the laager and the intense darkness and rain added to our discomfort. When the bugle sounded the "Opzaal" it was found that a considerable number of the burghers had hobbled their horses, but the majority fortunately had their horses tied to the wagons. Those who had no horses were ordered out on foot. After we

had spent an hour or more in our positions awaiting the enemy's approach or news of his movements, the commandant, on further investigation, came to the conclusion that it was another false alarm. We were then ordered back to our beds. At 3 a.m. we returned to the hill to do our share of night duty, and in this instance were accompanied by the Rev. Kestell. I continued the same duty every morning until 3rd December, when I was taken ill and had to go to the hospital. I had been unwell ever since that dip I had with Jan van Wyk in Sandspruit on 26th November. I got good medicine at the hospital and speedily felt better. The following Monday I applied for leave to visit my family, but was refused, the commandant exhibiting a letter he had just received from the Hoofd Commandant strictly prohibiting the granting of leave of absence.

It was decided to shift Long Tom to Kroonstad laager, and this was done in the night. Before the position for the gun was in order, however, the enemy discovered the spot and made it so warm for the schantz builders that it was thought prudent to allow Long Tom to be moved elsewhere. The gun was then sent on to the hoofd laager, where it remained.

Saturday, 9th December.—Received a letter from my wife to-day stating that my second son, Hansje, was seriously ill. Having lately lost my other boy, I felt very depressed on getting the news. I handed the letter to Field-Cornet Lyon, who was kind enough to say that he had no objection to granting me leave, but that the matter rested entirely with the commandant. Evert Potgieter then offered to intervene with the commandant, and returned in a few minutes stating that my leave was granted and the pass was being written out. I immediately called Dubuzita and told him to saddle the horses. We started for the Free State at 5 o'clock. My horse is in poor condition, but unless he gets sick I know he is as good as gold. At 11 o'clock the same night I off-saddled under the Verzierkerf (halfway up the Drakenberg). The weather was very threatening, plenty of lightning and thunder. Luckily the heaviest storm passed some distance from us. I slept well. At daybreak next morning I resumed my journey, riding through mud and slush. Dubuzita's horse Scot seemed now to be getting weak, so we had to off-saddle at short intervals. I afterwards decided to let him follow slowly whilst I pushed on. On Sunday evening at 10 o'clock I arrived at Morgenzon farm, having travelled 110 miles with Mick. It was a good record for the horse. He had done more than two months' commando service, and my weight was then 255 lbs. without accoutrements. I was greatly disappointed to find that my wife was not at home. She was staying with her mother at the Styldrift farm. I borrowed a horse from my brother and reached Styldrift at midnight. It was a pleasant surprise for my wife when I turned up. Our meeting was

naturally joyful, but somehow we could not dispel the gloom cast over us by the death of our dear Paulje. My wife and I returned to our home next day, where I spent my leave very quietly and pleasantly.

On Friday, 15th December, whilst I was busy counting my sheep, I could distinctly hear a rumbling noise resembling thunder at a distance. On listening closely I had no doubt it was heavy cannon firing in Natal, and so it proved later.

My brother returned from Reitz on Sunday, 17th December, bringing the following news. The Rev. Viljoen had read a telegram sent by General Botha to the State President, announcing the victory of Colenso, with the help of the God of our fathers. The telegram further mentioned that it was estimated that the enemy had lost about 2,000 in killed and wounded. On our side 7 killed and about 30 wounded.

On 22nd December, I returned to the laager at Ladysmith, and on my arrival there heard all details of the battle of Colenso. My old father was there too. The men in our laager spent an anxious time during the progress of the battle, and with reason, because our position is between Colenso and Ladysmith. In case Buller got through we should have been between two fires. We erected a monument of stones near our laager on 16th December, in remembrance of the victory of Colenso and the battle with Dingaan, 16th December, 1838. I also placed a stone on the monument with my name engraved on it.

Christmas came, and was passed pleasantly enough under the circumstances. Some of our lady friends in the Harrismith district had sent us cakes and other delicacies, Mrs. Dirk van Rooyen alone sending two packing cases filled with sweetmeats. We were all told to form a circle, and every burgher received his share. Willie Odendaal was the distributor. Afterwards felicitary speeches were made.

The same daily routine now continues. It is getting very monotonous. We are expecting an attack from one side or the other. The enemy's search-lights are in evidence every evening Tugela way. Rumours again prevalent about an attack on Platrand. We are getting sceptical on this point now, however, for we have heard the same story so often before.

New Year's Day, 1900.—Passed by quietly. On 2nd we moved our laager to a point nearer Ladysmith—just behind the hill where our guns stood. A combined Krygsraad (council of war) was held on this date at the hoofd laager.

Our officers returned from the Krygsraad in the evening, but nothing was said. Divine service was as usual held by the Rev. Kestell, and from the tone of his sermon we gathered that some important resolution had that day been taken. We were not kept in suspense long. After the service, Commandant de Villiers, who also held the appointment of Fighting General of the Free State forces round Ladysmith, addressed

the burghers and informed them that the Krygsraad had now definitely decided to attack the Platrand with a view of taking Ladysmith, the date to be fixed later. He spoke words of encouragement, and trusted all would be satisfied and do their duty. He explained the plan of attack. From the Free State side Wagon Hill would be stormed by the Kroonstad, Heilbron, Harrismith, Winburg commandoes, while from the Transvaal side Cæsar's Camp would be attacked by the commandoes of Vryheid, Utrecht, Wakkerstroom, and Heildelberg. Some of these commandoes would be divided so as to operate at other points. All the commandoes round Ladysmith would attack to prevent the enemy from concentrating their forces on Platrand. An additional gun would be placed on the hill above our laager, and a pom-pom on Middle Hill. Two Krupp guns were to be placed at the Winburg position, whilst the Long Toms (one on Bulwana and the other at the Free State hoofd laager) would be able continually to play on the hill (Platrand). The Krygsraad had left the matter of appointing a date for the attack in the hands of General Joubert and Hoofd Commandant Prinsloo.

After receiving the foregoing information we returned to our tents, and as can be easily imagined the proposed attack on Platrand and Ladysmith was the talk of the hour. Opinions differed as to the prudence or otherwise of the measure. Many burghers approved of and acquiesced in the resolution of the Krygsraad, others again thought the experiment too dangerous, especially as the result seemed so doubtful. However, we all prepared ourselves and patiently waited the final order. On Friday evening, 5th January, 1900, during divine service, a despatch rider arrived in our laager from Chief Commandant Prinsloo and handed a letter to Commandant de Villiers. After service the commandant spoke as follows:—"Burghers, I have now received instructions from headquarters to storm Platrand to-night. You must now all prepare yourselves. Take plenty of ammunition, some food, and dress as lightly as possible. We start from here at 9 o'clock this evening, riding as far as Middle Hill, where our horses will be left in charge of the servants. At 3 a.m. to-morrow we climb the mountain. When the bugle sounds, all burghers must saddle and mount, and appear in front of my tent. I shall then request the Rev. Kestell to offer up prayer to the Almighty asking Him to protect and strengthen us in our undertaking."

Great silence now reigned and after a brief interval the bugle sounded and the words "Opzaal, opzaal" were heard all round. According to instructions, we first repaired to the tent of the commandant, where the Rev. Kestell offered up prayer. Just as we were about to start, father, Jan van Wyk, and H. van der Watt arrived from Harrismith. They had been away on leave and brought letters from home, but I had no time to read them then. Gert Wessels joined us, and I often recall the

conversation between him and Jan van Wyk and father on that memorable evening. Asked by father how he was getting on, Wessels answered "First rate, Oom Hans, for we are going to do business to-night, and I feel happy in consequence." Father said he felt Wessels would not return from Platrand next day—and he was right.

We then commenced our march in dark and cloudy weather. On reaching Middle Hill we made a halt. The place seemed to be teeming with burghers, servants, and horses. At half-past one we started for Platrand on foot. We proceeded along the east side of Middle Hill. We went along quite cheerfully, although somewhat nervous, under the impression that the whole commando was moving forward. Owing to the darkness, however, we could not see the number of men. Assistant Field-Cornet Jan van Rooyen continually encouraged the burghers. On reaching the dongas at the foot of Wagon Hill, I left my mackintosh behind. We then began to climb the hill. We had not reached the top, when a British sentry shouted "Halt! who goes there?" He repeated this twice and then fired. We returned the compliment and the fight began. Firing now became general. One of the enemy's cannon fired on us with case shot. Five shots were discharged in all, but their aim was too high, and they did no harm to us. We pushed to reach the top of the hill, but our men were so scattered on getting there that there was some danger of the burghers shooting at one another by mistake.

As it was not light yet, we were unable definitely to locate the enemy, and so far the firing was mostly at random. When day dawned, however, things improved, but still there was a good deal of confusion, such shouts as "Look out, we are burghers" being frequently heard. It soon appeared that a party of our men had got away from the others, and were a good distance ahead and in danger of being cut off. They included P. Lourens, H. Pienaar, H. van Wyk, Jan Minnie, Wessel Wessels, W. Labuschagne, Dowd Steyl, and H. Lourens, junr. Fortunately we were able to assist them with our cross fire. Once the enemy charged them with fixed bayonets, but the soldiers were all shot. They then managed to creep back to us. Of their number, however, Marthinus Potgieter and M. V. Uitweerden, of Harrismith, Field-Cornet Jan Colliers, of Heilbron, and White, of Vrede Fort, were killed, and A. Loggenberg, of Kroonstad, wounded. At our point, Piet Minnie and Adrian Marias were killed, and Maine Wessels and Matheus Wessels, all of Harrismith, wounded. We also heard that Jan van Wyk, assistant field-cornet, had fallen, and that Willem Retief was wounded. This was all before sunrise. When the sun rose I wondered how many of us would see it set that evening. We now made an unpleasant discovery. It was clear without a doubt that the commandoes that should have been with us on the hill were

not there, even the bushy point which Winburg had to occupy was in possession of the enemy. Only the two Krupp guns were assisting us from the hill on the other side. There was no sign of the promised howitzer and pom-pom. We are apparently only a little over 200 strong, and have the enemy in front and on both flanks. It is a struggle for life and death. A few of our men try to seek better shelter, but in moving are shot. Nothing now remains for us but to hold our positions until reinforcements or night would come. There are no signs of reinforcements, besides, the enemy from their positions control all the approaches to the hill.

In the morning we had taken 13 prisoners, including 5 wounded. The latter were attended to by the Rev. Kestell, who bound their wounds and treated them with great kindness. I was lost in admiration for the reverend gentlemen, who with his gentle manners combines a lion's heart.

One wounded soldier was lying some distance in front of me and was a source of worry and pity to me the whole day. He continually begged for water, and although we all felt sorry for him we could not render assistance, as, in the first place, he was in the firing line, and, secondly, our water was exhausted in supplying the wounded soldiers in the morning. Moreover, we were in a continuous shower of bullets and could hardly stir. Towards midday all our men began to complain of thirst, but no water was to be had. I felt parched. Some risked their lives in running back to find water, and several men were shot in this way.

As the afternoon wore on the firing became hotter from the enemy's side, but our two Krupp guns were now doing splendid work. In the morning they nearly managed to place several shells among us instead of the enemy. I was surprised to notice that the rise on our right which should have been occupied by the Winburgers was partially held by the enemy. If the enemy had succeeded in getting entire possession of this rise they could quickly have dislodged us from our position. The reason they could not do so was this: A number of our men had remained behind in the dongas below the hill, and the rise referred to was partly exposed to the unceasing fire of these men. A few men under Japie de Villiers on our right also made it difficult for the enemy to become complete masters of the rise in question. We were anxious about the bushy point of the hill on our left, thinking the enemy might concentrate a force there to cut us off later on. We noticed also that a small party of 15 burghers on horseback who attempted to reinforce were driven back by the enemy's fire from the point named. The commandant thought it necessary that that position (the bushy point) should be attacked.

Accordingly, Zach de Jager, Japie de Villiers, and 15 men were selected for the purpose. They stormed the place, and heavy firing was

soon heard in that direction. A report came a little later that Zach de Jager and Japie de Villiers had taken the fort and were inside it. This was erroneous. We quickly learnt the truth: Z. de Jager, Japie de Villiers, Gert Wessels, and Fanie Sands had reached the walls of the fort, but all four had fallen there. The other men had retreated. Wessels had been twice wounded in the morning, but continued fighting until he received the fatal shot.

The enemy now repeatedly charged our position with great determination. A most severe thunderstorm broke over in the afternoon, during which (the rain and hail falling in our faces whilst the enemy had it from behind) a desperate charge was made upon us by the enemy, but we repulsed them. At this juncture I heard that our much-beloved Field-Cornet Jan Lyon had fallen. This at once cast a gloom over the men. The rain enabled us to quench our thirst somewhat, but we had to drink water mixed with blood. Late in the afternoon the fight commenced to abate on the Transvaal side (the other end of the hill). At our end it still raged furiously. We were all worn out, cold and hungry, and praying for the sun to set. Sunset at last! The fight still continued in the twilight, but as soon as darkness fell the commandant ordered us to fire a last volley together and then to retreat. This having been done, we were soon flying down the hill like so many roebucks. It was then 7.30 p.m. The return to the laager was the reverse of pleasant. We were all knocked up and had to assist our wounded, some having to be carried. To our great relief we met our friends halfway from the laager, coming to our assistance with horses. We reached our laager about 11 p.m. and managed to get all our wounded away, with the exception of Piet Schutz and Jan Nel, who both fell into the enemy's hands. I had to be content with a cold and very frugal meal that night, as the rain had put out all fires and no one thought of preparing dinner for us, the servants being mostly away with the horses. But we were really too exhausted to think of eating much, and were thankful to be able to change our clothes and turn into bed.

The following day (7th January, 1900) Commandant de Villiers sent Karl Wethmer with a white flag to the English lines asking for permission to fetch our dead. This was granted, and at 9 o'clock 12 men were despatched with an ambulance and a buck wagon for that purpose. When they returned, it was sad to behold the 19 corpses huddled together on the wagon, all dear friends, who were hale and hearty the day before. They were all buried the same day—with the exception of Japie de Villiers, Zacharias de Jager, and Marthinus Potgieter, whose bodies were sent to Harrismith—at a spot near the monument erected by us on 16th December, 1899. Piet Schulz was exchanged for a prisoner we had at the laager,

but he died the next day. Jurie Odendaal, wounded at Middle Hill, and Haine Wessels, also died of their wounds the second day.

The total losses of the Free State in the attack on Wagon Hill on the 6th January, 1900, were: killed 27, wounded 33. The total number taking part in the attack was 253.

I now wish to make a few remarks on our military system, which I consider very defective. With reference to the attack on Platrand, the resolution of the Krygsraad stipulated that the Free State commandoes stationed in the neighbourhood should all participate. The attacking force should therefore have been at least 1,500 strong, and yet only 253 men obeyed the instructions. It was simply scandalous. Nobody has been court-martialled, not even a gentle reprimand has been forthcoming from our leaders. There is something wrong somewhere.

Sunday, 7th January.—Burying our dead. Very impressive service held by Rev. Kestell in the evening.

Monday, 8th January.—The whole commando assembled in front of commandant's tent for purpose of electing officers in the place of those who had fallen, with following result: Jan Uys, elected field-cornet in place of J. T. Lyon; Wessel Wessels, elected assistant field-cornet in place of C. de Villiers, resigned; Jan Jacobus, elected assistant field-cornet in place of Japie de Villiers.

In the evening news reached us that Buller's column was in occupation of the Boschrand, south-west of Spion Kop. Until the 6th inst., this place was held by Japie de Villiers with 50 men, but these had been recalled to assist in the attack on Platrand. From this date we were ordered to strengthen the fortifications round our laager, and commenced building schanzes, digging trenches, etc., in real earnest.

The general opinion was that Ladysmith garrison would endeavour to form a junction with General Buller's column Spion Kop way. I regret that I am not able to give an account of the battle of Spion Kop, but we constantly received news from there.

The enemy commenced a heavy bombardment of our positions in the neighbourhood of Spion Kop on 16th January. Their guns were placed on the Boschrand, which Japie de Villiers had previously occupied. From our positions we could easily see the discharge of their cannon, and also the bursting of the shells, the distance being about 15 miles. The Ladysmith garrison was now firing rockets every night. These, together with Buller's search-lights, which were most vivid, brought us to the conclusion that we were on the eve of important developments. Commandant de Villiers went as a reinforcement with 50 men towards Spion Kop, and took up a position at Coventry's farm. One of our men returning from there told us the Khâkis were coming on like young locusts.

On 18th January we heard that Field-Cornet Mentz had fallen, and that a party of burghers had been captured at Coventry's, but the most distressing item of news reached us on the 24th January, when a certain Potgieter of Vryheid, raced past our laager early in the morning and reported that the English had taken Spion Kop the previous night. The fight had then been going on for some days all round Spion Kop. At 11 o'clock, however, the clouds lifted, and our heliograph being then able to work, we were soon in possession of the glad tidings that the enemy had been driven off the mountain. So far as could be ascertained, the enemy suffered severely, their loss in killed and wounded being estimated at 3,000. Our total loss at Spion Kop and neighbourhood is reported as 378 killed and wounded. This includes all the fights that have taken place there. General Buller having now been defeated for the second time, we all felt relieved and more confident. The only anxiety we had was about the defences in the Cape Colony.

Thursday, 25th January.—Assistant Commandant P. J. C. Maree left for the Free State, and Jan Meyer, Volksraad member, was appointed to act in his place temporarily. Commandant de Villiers also took a holiday, leaving Jan Meyer in command. This day a thanksgiving service was held in remembrance of the battles of Colenso and Spion Kop, the Rev. Kestell admonishing the burghers "to learn, mark, and inwardly digest," Psalm cxxiv.

Friday, 26th January.—Favourable reports received from Cape Colony. The Transvaal forces there are commanded by Generals Cronje and De la Rey, the Free Staters by Hoofd Commandant Piet de Wet and Fighting General Christian de Wet.

The excitement in our laager has considerably abated since the 25th, but false alarms, especially at night, are still frequent.

Jan Wapenaar was elected acting chief corporal in place of Charlie Howell, who has been granted leave of absence.

Monday, 5th February.—To-day the enemy again attacked our positions at Pont Drift or Vaal Krantz, bombarding heavily. The fight continued until Wednesday (7th February), when for the third time the enemy had to retreat over the Tugela. An unfortunate incident occurred during this battle, 34 burghers (mostly Johannesburgers) being cut off by the enemy; they fought gallantly, but only 3 of their number escaped unscathed, 24 being killed and 7 wounded. This occurred at 2 p.m. on the 5th.

The enemy have now again retired to Chieveley. I have not been able to find out what our losses were in the above fight.

Friday, 9th February.—Commandant de Villiers returned to laager to-day.

Saturday, 10th February.—The commandant to-day informed us that a great combined Krygsraad would be held in our laager at 11 o'clock, the spot selected for the purpose being under the big tree near the commandant's tent. As the Krygsraad was to be held in secret, we were requested not to disturb the proceedings, but to absent ourselves from that quarter. Soon we observed Commandant-General Joubert's conveyance approaching. It was a fine turn out: a light spring wagon with a black cover, pulled by 8 beautiful brown mules. They halted and outspanned about 200 yards to the west of our laager. The commandant-general and his staff officers then walked from there to meet Commandant de Villiers at his tent.

After a little while the general, requested thereto by our commandant, mounted a wagon and addressed the burghers. His passionate and eloquent speech made a great impression, and we all felt inspired by fresh hope and determination. At the end of his address the Volkslied was sung. The officers then arrived from all directions, the most notable amongst them being General Joubert, Hoofd Commandant Prinsloo, and Generals Botha, Meyer, Ben Viljoen, and Schalk Burger. The Krygsraad was daily held, about 60 officers attending. Although the proceedings were private, it transpired that it had been decided to appoint General Botha and Commandant de Villiers to examine all the positions along the Tugela, and to arrange for a new disposition of the Republican forces.

A few days later I left for my farm in the Harrismith district, which I reached safely after an uneventful journey. My wife had done well during my absence, and the stock were all in good condition. I spent ten pleasant days on the farm with my family. My leave having expired, I started on my return journey to the laager.

Reaching Harrismith on 27th February, I called on Mr. Warden, the Landdrost, whom I knew well. He advised me to remain in Harrismith for a while, as important developments were then taking place. From what he hinted, I gathered that things were not looking rosy for us.

At 3 a.m. on 28th February the market-bell tolled (the signal when important war news was received), and a telegram was read to the public announcing that General Cronje had been taken prisoner with about 4,000 men, that the positions round Ladysmith and Tugela had been abandoned, the Free State burghers retreating to the Drakenberg, and the Transvaalers retiring on the Biggarsberg. I, therefore, decided to remain at Harrismith until our commando reached the berg.

On 3rd March I learned that our commando has laagered at De Beers on the Drakenberg, and I at once proceeded thither by cart, arriving at my destination the same day. I now heard all about the battle of Pieters Hill and the retreat from Ladysmith. The burghers did

not appear to be unhappy or discouraged, but Cronje's surrender was deeply felt by everyone. It was like a stab through our hearts.

Monday, 5th March.—Lung sickness broke out amongst our oxen, and we were kept busy with inoculation up to the 8th inst. Instructions received from the chief commandant on latter date to remove our laager to Bezindhout's Pass, which had to be guarded by us against invasion from Natal. The first night we camped near Albertina, and the second day bivouacked at Albertina Bridge. The burghers seemed in a merry mood, the young bloods indulging in sports of all kinds.

Fraser Spruit was reached on 11th March, and Bezindhout's Pass on the 12th idem. We soon formed laager in the usual way, and once more felt settled. This was no mistaken idea, for at Bezindhout's Pass we had to remain more than four months. During all this time nothing of any importance occurred on the Drakenberg. We did the usual commando duty, and occasionally a patrol went down the berg into Natal. Leave was easily obtainable, and almost all the burghers visited their farms from time to time. As we had plenty of spare time, sports of all kinds were indulged in. We also made a large quantity of yokes, keys, reims, etc.

RECONNAISSANCE AS A FINE ART UNDER THE PRESENT CONDITIONS OF WAR.¹

By Major F. C. ORMSBY-JOHNSON, R.M.L.I.

PERHAPS, as an introduction to the subject of Reconnaissance, I may be allowed to quote a short passage from the fascinating pages of "Linesman," in the volume known as "Words by an Eye-witness," before I proceed to make some attempt to cope with the problem of "how to reconnoitre" on a large or small scale. And first let me add my conviction, that the key to reconnaissance, like that of the bilateral cypher, is "inspiration." Can it be evolved?

Before I make my quotation, may I anticipate a charge of irrelevancy by boldly stating my opinion, that I should hardly wish to reduce this vast abstraction, called Military Reconnaissance, to an academic study bounded and delimited by narrow concrete rules, which *must* fetter the practical student; though in order to grip this complex problem, an attempt must be made to outline the principles on which our troops may be instructed. And so to my quotations from the volume which, to my mind, more than any other dealing with the South African war, has brought home to the civilian and the soldier the very *atmosphere* of modern warfare:—

"Boers have two of the most valuable of martial qualities—an eye for country and self-reliance. Had they the third—the instinct of self-sacrifice—at command, they would be the most formidable fighting men on earth; even without it they are nearly so.

"The British soldier has the third—the only unteachable one—without the other two qualities, and he has it so abundantly that this deficiency has been sometimes nullified. Teach them to him, and you have a soldier who will conquer the world in arms, not as now with the full expectation of attending the funeral of one in every twenty of his friends."

Then again in another place the same author writes as follows:—

"The net result is what I have stated, that in *small* cunning the Boer is unequalled, and consequently holds in *small* affairs a great advantage over braver but less guileful opponents."

¹ This paper was originally read before the officers of the garrison at Devonport, 7th January, 1902.

In these few words I maintain that we have almost the full measure of that enemy who, if some pessimists had been believed at the crisis of the South African campaign, was the perfect epitome of all the strategists who ever lived from Hannibal to Napoleon or the great Duke of Wellington.

But in sober logical English such nations as the twin Republics, now colonies of Great Britain, might have been *expected* to excel in those minor arts of espionage and tactical surprises much wanting in continuity which in nearly every case have been due to a long and careful, if possibly unconscious, study of the country and a decentralisation¹ of commandoes as well as instinctive training for guerilla war, induced by long years of struggle with nature and the native, which indeed were valuable assets, but which, if a campaign is only sufficiently prolonged, must inevitably be overshadowed by the modern army, which enjoys resources in the shape of a body of officers and men trained to treat war, and more particularly that branch of it which comes under the head of reconnaissance, as a *continuous* and by no means a spasmodic and occasional episode, the detached and illogical want of continuity of Boer actions being a marked feature of the campaign. So if an attempt is made both in peace manœuvres and in actual warfare, to locate every unit of the enemy by means of reconnaissance, the cases of surprise will be fewer, because the habit of reconnaissance will be too strong to be disregarded and an absence of reports of a reliable nature will most certainly result in such modifications of the plans of all set in high authority, as to render it quite certain that no combined movement in force will be made without the basis of actual knowledge or deductions formed from reasonable hypotheses. For it must be borne in mind that for many reasons the British troops were impelled to hasten their movements in advance, and even to fight at the beginning of the campaign without any pause for detailed reconnaissance. Then, as the end drew near, *trained* intelligence checkmated the nature-trained Boer at his own game.

The next point which occurs to me as introductory to the subject is the measure of disguise and dissimulation which is lawful under the accepted "conventions of war," for this is a most material factor in discussing warlike reconnaissance, and more particularly that form of it which appeals to us so strongly, while our Army in South Africa is still engaged in a series of more or less detached operations, which, when the full history of the campaign is written, will claim, perhaps, as much attention from the military student as the pitched battles of this unique campaign.

¹ There is internal evidence in the secret history of the Transvaal that the country *was* mapped out.

"Quoting from the 'Aide-Mémoire' of the French staff officer, I find this definition of the conduct which should characterise civilised troops in the matter of permissible and forbidden espionage :—

"The essential character of 'espionage'¹ pure and simple is the concealment or dissimulation of the intention to observe an enemy's dispositions in the garb and character of a non-combatant. Thus a soldier disguised as a civilian, or a civilian *affecting* the rôle of a disinterested or friendly party, and found in the act of taking notes, asking questions more or less material to the dispositions of the army, or found in possession of plans, sketches, or even *data* relating to the defences or locale of troop-units, is liable to be tried by a military court, though if such a person escapes and is caught on a subsequent occasion, when *not* engaged in espionage, he cannot be tried for his original offence."

It, therefore, appears that the garb of the soldier, even when engaged in military espionage or reconnaissance, must be sufficiently indicative of his rôle as combatant to enable an enemy to recognise him as such when brought face to face with him in close combat, though I can find no clause or law, international or otherwise, which forbids the blackening of buttons, and the like, if such obsolete fashions as brass ornaments were ever again allowed to be worn in warlike operations.

The same rules, one must note, govern the use of the "white flag," which is the sacred emblem of a desire to treat, and can never be fired on, unless the bearer or his party, on the refusal of the enemy to discuss matters, should commit some overt act of warfare, when he may be treated as a belligerent and shot.

Having thus touched cursorily on some of the rules of the great game of war, I approach the subject of reconnaissance more directly and divide it into the headings under which it naturally falls :—

Strategic Reconnaissance, Reconnaissance in Force, Special Patrols, Ordinary Patrols.

To begin with, the first and most obvious reconnaissance undertaken by the military representatives of the nation which is about to commit its cause to the arbitrament of war is that which, for want of a better term, I will call "Strategic Reconnaissance," which is, of course, partly based upon the existing maps in the Intelligence Branch of the Army, and partly contained in special and consular and other reports, which inevitably find their way home when the war clouds are looming on the political horizon. The late Captain Gill, R.E., for instance, travelled much at his own expense, and brought back invaluable scientific information. Majors Younghusband and Yate did the same. Now I am prepared for

¹ We do not recognise the term. The French *use* it, but denounce it as penal.

the objection that this can have very little to do with the *bulk* of the officers and men of the land forces, who are not likely to be employed in a rôle necessarily limited to a small percentage only. So that here I will ask you to bear with me in another slight digression, which may tend to elucidate my meaning.

It was just before the expeditionary force left these shores for the Egyptian war in 1882 that I met an officer in the smoking-room of a club closely studying one of Murray's guide-books. In reply to a question I put to him, he told me that as he could find no purely military hand-book on Egypt it had occurred to him that he might acquire some useful information from the volumes beloved of Cook's tourists. Now, whether or not the officer in question gained much from his perusal of Murray, it has often struck me that if some of the voluminous information collated at Head Quarters, could be distributed in "hand-books of war," as I may term them, with as much information with regard to the armament, habits, etc., of the enemy or potential enemy as possible, with lucid essays by the best authorities on the difficulties to be met with, and the alternative tactics most likely to bear fruit, with perhaps a chapter or two for the advanced student on strategy adaptable to the *terrain* to be occupied, the result would be that a large percentage of the officers and men would start with sound notions of the kind of enemy they were to be pitted against, and some knowledge of the climatic and other difficulties to be overcome. This in fine would be a kind of strategic reconnaissance which would place an army in the field, if all officers and men were encouraged to study the special hand-books in question as a habit of life, in a position in which they would not for long be at a loss in any clime or in any conflict. For instance, different war-study might be set for each season. Add to this the careful study of frontiers, wherever troops are stationed, with special reference to a mimic campaign and by a realistic war-game, in which the pieces are first placed on the map of the country, and the troops then moved over the identical ground in nature, and one arrives at some such tactical reconnaissance as should precede the proclamation of war, and form an adjunct to the strategic survey dealt with above.

And here, perhaps, before I proceed to touch lightly, for time is limited, on reconnaissance in force (a feat of consummate generalship if successful, but formerly *alleged* to be most dangerous as to the morale of an army if not judiciously worked out), on special reconnaissance and on the ordinary conduct of strong and weak patrols, I may say a word on the rationale of scouting in general, and on the methods of teaching officers and men how to make it a habit of life and not an occasional incident of a summer field-day.

But on proceeding to discuss details of the *tactical* reconnaissance of an enemy in position or on the march, it may be objected that no mention has been made of that reconnaissance of *country*, which enables a commander to appreciate the difficulties or the advantages of his advance or flank march or other movement in a specific direction. But I think this branch of the art is covered by what I have said above on the necessity of keeping officers and men up to date in the knowledge of their immediate environment both in war and peace. while the *data* for such reconnaissance are to be found in the text-books. To this end tactical marches would be carried out in time of peace at home with the view of locating an unseen enemy, and with a view to collective reports from commanders of dispersed units on the tactical features of the *terrain*, thus improving on the old system of detailing officers *without* troops to reconnoitre some days beforehand the country which is to be traversed by manœuvring units at a later date. Of course, one might recapitulate text-book aphorisms *ad nauseam* dealing with the headings of a detailed reconnaissance of country, which are all *sound* but by no means the object of this essay, which I now want to divert to that other channel, *i.e.*, reconnaissance in actual touch with the enemy.

And now passing on to the uses of a "reconnaissance in force," which in spite of its infrequency, I believe still to hold a place in military nomenclature, two great authorities must here be quoted, who are, or were, undeniably opposed to the practice, save as an exception and for a very special object. Thus both Field-Marshal Lord Wolseley and the late Lieut.-General Sir Edward Hamley have laid stress in "The Soldier's Pocket-Book" and "The Operations of War" respectively on the loss of morale consequent on an advance made with the obviously necessary consequence of retreat, while, of course, none but the supreme commander-in-chief and his staff can possibly judge whether the game is worth the candle, though the mass of officers and men soon become aware of the fact that the movement to the rear is planned as such, unless in the exceptional case of a proposed counter-attack of the enemy and the retreat becoming a rout.

But let me examine this question from the point of view of troops experienced in the use of the magazine rifle, the Q.F. mobile gun and with a strong and skilful hand on the reins, well adapted to handle light troops including mounted infantry. Of course, one's thoughts fly instinctively to certain actions in the South African campaign, which perhaps in the dry keen light of history we shall learn to regard as mere reconnaissances in force and not as pitched battles on selected ground, if indeed the latter term is appropriate to one engagement in twenty of the war, the circumstances so often tending to the splitting up of

intended battles into dispersed actions, in which what has been well called "the low cunning of the Boers" had full scope, with corresponding disadvantage to British troops trained to fight on more chivalrous a plan.

Now I want to deal with the question what is this subtle mood pervading an army, which is called "morale," for the definition is important and very relevant to the subject of a "reconnaissance in force." And again, has loss of morale—if the term means, as I prefer to translate it, the optimist or pessimist temper of a large body of men—been peculiarly noticeable during the present war? Turn again to the "Words of an Eyewitness" and we find that so far as the great mass of troops was concerned, the term had no particular meaning to an army which went to war with an absolutely certain conviction that it was bound to come out on top in the end. In this sense even Spion Kop was to the bulk of the army merely an *incident* of war, though "Linesman" very properly objects to the cynical use of the term when applied by florid and irresponsible scribes to the gallant deeds of men who placed that "incident" on the page of history in letters of blood.

Now without a single word of criticism, for this is not the time or place for it, let me picture for you some such impregnable position as those rugged ramparts of Natal, and assume that some kind of feint must be made to draw the fire and disclose the strength of an enemy in position. So the first question that arises is, how to gauge the force with which so tremendous a task is to be undertaken; and my impression is that, given the factors of smokeless powder, magazine rifles, machine and Q.F. guns, etc., the display of force required for the operation must be based upon two questions, *i.e.*:—1. Has the enemy a general knowledge of the average strength of the force opposed to him, such as, for instance, the Boers had while their lines or *sources* of communications were still open to them? 2. Can the fraction of the army, whether army corps, division, or lesser unit detailed for the reconnaissance, so disguise its strength by accidents of ground, stealthy approach, mobility, etc., as to keep the enemy in ignorance of the reality or falsity of the attack until too late to move reserves to the post or section threatened with exposure?

To this add a rider in the shape of the dogma, that the modifications in tactics forced upon us by the introduction of improved arms of precision will in most cases compel a prudent commander to hold his main body in readiness to force home the reconnaissances as an *immediate* sequel to the acquisition of a *pied à terre* in the hostile zone of operations.

Immediate, *i.e.*, in the sense that the operations are continuous, allowing only for brief pauses—the one operation being the complement of the other.

Then let me point out that this reading of a "reconnaissance in force" is a very different thing to that described and allowed by Lord Wolseley and Sir Edward Hamley under special circumstances, for what both were picturing and describing were mere isolated movements in advance by a force of all arms such as was conducted by Lord Raglan at Bulgarnac with 2 divisions, 2 cavalry regiments, and 9-pounder batteries (12, I think,) to extricate 4 squadrons of cavalry, or that by the Prussian General Stolberg against the French in the Forest of Marchenoir, which last was a leap in the dark, as the position, strength, and morale of the French forces were absolutely unknown factors.

Now a few paragraphs back I touched on the normal procedure in these days of pushing the attack hard close on the reconnaissance in force, and with reason; for what the Boers could do in the shape of prolonging lines of defence, changing front, or throwing back crochets, because they were both mobile and resourceful as to *every* unit of their extraordinary organisation, a modern Army possessing large bodies of mounted rifles and cavalry *should* and *would* do equally well, which manœuvres obviously would completely alter the conditions of the attack if an interval, even of hours, only should intervene between reconnaissance and the advance within striking distance of the main body.

But here, perhaps, an interpolation is necessary in order to refute the argument that no enemy worthy of the name would *allow* a force of all arms to remain on the tactical offensive for a period of time sufficient for the army in rear to deploy and form for attack, and to this I reply, that such a force of all arms as I have tried to picture would not only be sufficient to pose and manœuvre for some hours as a real attack, but that the main body would be already deployed and formed in its bivouac for an immediate advance, while the advanced reconnoitring units would be provided with mounted sappers and working parties of mobile infantry for the purpose of secret construction of defensible observation posts, which would be linked together by connecting posts and horsemen with special regard to lines of retreat, if so hard pressed and forced to give way, before the real attack should be in position to deliver the *coup de main*. And here I should like to point out that what I would call the "fighting bivouac" should be echeloned in advance or in rear of the more permanent camping ground, both in order to deceive the enemy and to ensure mobility.

Now, summing up briefly the *raison d'être* of a "reconnaissance in force" before I pass on to a more detailed commentary on the mode of instructing troops in the art of reconnaissance in small bodies, such as patrols from outpost lines, special and strong patrols, I arrive at the conclusion that this method of reconnaissance, in face of the improve-

ments in armaments and the increased advantages of the defence, would probably be applicable to the following cases, among others:—

1. An army which is in a position to attack before the enemy has time to alter the details of his defence, more particularly in the matter of moving bodies of men to points threatened by the reconnaissance in force. This pre-supposes that the advanced units of observation have fixed some objectives of the assault, and have so far succeeded in their mission as to hold some point of vantage until the main cadres of attack can move into tactical connection with them.
2. A force which is tracking a mobile force of the enemy which cannot be held fast or properly reconnoitred by mere "advanced" and "contact squadrons" or ordinary patrols.
3. A force which is watching and holding a coast line, the main body being required for operations of great importance, and therefore unable to fritter away its units in widely extended formations.

I purposely exclude fortress investments and the *chance* battle of mobile field armies.

Other cases might be enumerated, such as that of an army of occupation in such a country as South Africa, when the perpetual movement of strong mixed brigades of mounted troops would undoubtedly tend to pacify a conquered territory with much less labour than the constant moving of infantry from garrison to garrison.

De Bloch on Reconnaissance in Force.—Now it is but fair to quote de Bloch's theory that reconnaissances in force, as projected by no less a person than von Moltke, are absurd, because the effect of rifle fire is so great that Lord Roberts increased intervals of infantry in the attack to twenty paces, and because Lord Methuen stated that it was impossible to sit on horseback at less than 2,000 yards from the enemy.

Now we can hardly accept such deductions based on isolated dicta *not connected* with reconnaissance; at least you will accept my reading of history that in the first place von Moltke was dealing with the case of the single loader, and that I have said nothing about sitting on a horse within the forbidden zone; while in another part of his lecture M. de Bloch insisted upon *actual* detailed reconnaissance *on foot*, which I have already advocated both here and in former papers. Keynote of reconnaissance, like that of the bi-literal cypher, is "Inspiration."

Then, one last word on the subject of morale before I proceed to take a cursory glance at the procedure of small bodies engaged in the work of strong patrols and the routine work of lines of observation and

covering detachments, thrown out to form "the eyes, ears, and curtain of the army."

Thus, if we reconsider the time-worn legend, "the psychological moment," in the days of battles of half or, *at most*, of *one day's* duration, it must dawn upon us that when the combatants could and *did* approach to very close ranges long before the energy or *vis viva* of the attackers was exhausted, that psychological moment was forced upon all, or *nearly* all, of the troops engaged, and this nerve tension was the more marked, because the practice obtaining of bringing up supports and reserves in more or less close order let nearly the whole force into the secret of how the action was going and created a kind of public opinion, which very few generals could afford to neglect or disregard. But now in these days, when a brigade of infantry may well be disposed at intervals and depths treble or quadruple that of an old-fashioned division, it is obvious that the morale of an army fighting on a wide front will not be so liable to those waves of feeling which were wont to pass along the ranks with much the same force and consequence as the strange premonitions which in some inexplicable manner have at great crises appeared to photograph on the minds of Orientals the events which were as yet hidden in the unknown future. Apply this theory to the case of a reconnaissance in force, and we arrive at the conclusion that the movement will be so vast and abstract to the individual unit, whether man or company or squadron, that the happenings in one part of the line and even the retirement of the mass will hardly affect the general and pervading spirit of a force well handled and in the high condition which is almost a necessity of this special form of war, which is perhaps the most scientific and delicate of any accepted manœuvre. And I maintain this thesis in face of the fact that in the case of the Army of Natal—as "Linesman" tells us—the troops at times suffered *locally* from loss of morale. But these, if you remember, were as a rule in very close order, which accounts for a *great deal*, and *indirectly* supports my contention.

I here should like to add a note suggested by a review I have recently read on a somewhat remarkable book by a retired French officer on "Individual and Collective Military Psychology." From this volume let me quote two sentences, which, if axiomatic and more or less truisms, are perhaps truths overlooked on *account* of their obviousness. They read thus:—

"Every collectivity, when threatened in its moral or material well-being, may become a mob"; and "Violence from without is answered by violence from within."

Now I said just now that "Linesman," whom one may assume to be cognisant of at least *local* feeling in his own and neighbouring units, admits *temporary* loss of morale, where men were in comparatively *close*

order, but indignantly repels the idea of any general or wide-spread feeling of depression in the mass of the army of Natal. In other portions indeed of the theatre of war our officers and men were actually criticised for treating the campaign as a sort of picnic, which at least tends to confirm my impression that the new conditions of warfare must tend to raise *our* Army above the standard of the home-abiding soldier of the Continent, who lives in the constant shadow of a fight for national existence, along a difficult and apparently impassable frontier, while our troops are reared in the conviction that *always* and *by all means* the war is to be carried into somebody *else's* country. So that in spite of M. de Bloch's vaticinations, we may still hope that both in the abstract and in detail by a close study of psychology we may evolve a manœuvre discipline, which by the aid of the long-ranging arm and magazine attachment and quick-firing ordnance will enable our officers to deal with problems involving long odds against us (numerically) by opposing to them a reconnoitring power, which I hope to show is the key-note of success in war. But it will never be safe to neglect that dangerous collectivity, which cannot, of course, as a rule dwell in columns, because the *presumption* is that they are protected against surprise, but may infect any line of skirmishers if the intervals in action are reduced beyond a certain figure, which ought to be determined by the ability of the soldier to watch as well as guard a much wider frontier than ever before. In this sense the soldier must ever be ready for reconnoissance duty, which culminates at times in actual battle, because light divisions are obsolete in face of much wider areas now required to be surveyed or reconnoitred by forces of all arms.

Consequently the object to be kept in view in all extended formations, and more particularly in the case of reconnoissance, where troops are launched *en l'air*, as it were, must be to obviate the dangers of collectivity and loss of morale by strengthening the moral sense while attenuating the cordon, which in these days may have to fight as well as observe.

Assume, therefore, the necessity for defensible observation posts and a gradual advance of a left flanking column, keeping pace with the advance of the main columns, and the retention of reserves in rear of flanks of a thin line for the false attack.

SPECIAL RECONNAISSANCE.

And now a few words on military nomenclature, before I proceed to sketch out some form of instruction in reconnoissance to meet the needs of the period and the exigences of Imperial warfare. Our textbooks, so I have read in works¹ by *foreign* experts, are very deficient in

¹ Some of our own people have caught the infection, and are crying out for more verbiage.

their technical vocabularies and as relevant to the subject now under discussion, let me take the case of reconnaissance, which boasts in *our* Service perhaps not more than some half-dozen terms descriptive of mobile units of observation, such as reconnaissance in force, strong patrol, reconnoitring patrol, and the more or less conventional one of *special* patrol. (Visiting patrol is a police term.)

Now, this accusation, to my mind, savours of pedantry, and is the very hall-mark of "things made in Germany," where exactitude in alignment and precision of movement are carried to an extreme which must be put to the test of modern war before the claims of German tacticians to be right can be proved or disproved. Therefore, I would say, be content with the terms we already possess, so long as each conveys a distinct meaning, and is susceptible of those modifications which *can* be, and *ought* to be expressed in speech and in written instructions limiting and controlling definite operations of war.

For to multiply terms is very often to darken knowledge, and the simpler our vocabulary the easier to impress the laws and customs of war on the soldiery.

Now in the past, as I have already hinted, officers and men have been taught the art of reconnaissance in a very academic manner, because it was hardly to be supposed that the practice would with the old single-loader ever become a matter of days and even weeks before full knowledge of where to attack could be acquired. But now, if I have gauged the situation aright, battles may last for days, and the reconnoitring phase, may be greatly prolonged, and will at times be almost indistinguishable, to the onlooker, from the *real* thing.

By this I mean to suggest that, though *not all*, reconnaissance will be (technically) *in force*, yet we must accustom ourselves to mixed patrols of cavalry and mounted rifles (infantry), and even of artillery, for reasons which shall now be adduced.

Thus we have seen that the long-ranging arms of modern Armies, have put the closure on the grouping of large masses of troops in formation for attack, who cannot now dispense with a close and accurate reconnaissance of the objective selected by the general in command, while the case of cavalry patrols securing valuable information from mere saddle work in the matter of a knowledge of what is going on behind even provisional earthworks must be very rare. In consequence, we are driven to elaborate a training of our officers and men which shall aim at the evolution by artificial means of that instinctive discipline which helped the Boers to withstand a trained Army—and it must be borne in mind that the details of actual close reconnaissance will be obtained *on foot* for a long period—flushed though it was with a proud sense of certain eventual success.

Now, I said elsewhere that the practice of reconnaissance must become a habit of life ; and this might be compassed by :—

1. The firm and deeply-rooted conviction that modern war is bound up in this art which now pervades the every movement of a general in command in the field.
2. By the constant association of troops of *all* arms in tactical operations.
3. By the drastic regulation that no unit shall move from its barracks or camp or rendezvous (except, of course, for ceremonial drill) without all and every precaution taken and ordained by regulation in time of war.
4. By the arrangement of tactical marches in winter and summer with a system of surprise tactics and the provision of an umpire staff.

To enter more into details, you will perhaps bear with me if I advance my own ideas on the execution of these marches, which should teach more than the practice even of outposts (necessary as that is), because troops in movement are constantly changing their point of view, and fresh problems continually claim solution at the hands of the leaders. Therefore I say, send the unit, battalion, or company, or mixed brigade with tactical "ideas" set by an officer *not* concerned in the leadership ; and in the case of trained troops, *i.e.*, those who have passed all the necessary tests of the several courses, graft on to the pre-arranged problem others based upon "surprise tactics" in order to evolve the invaluable quality of initiative, without which neither the officer nor soldier can be reckoned up-to-date.

Of course, I am well aware that such critics as His Excellency Jean de Bloch, who recently lectured on the war at the Royal United Service Institution, has elsewhere advanced views, which, if adopted, would give the *coup de grace* to an Army recruited by means of a voluntary system on professional lines¹; but it is our business to make the best of the conditions of our system, which has withstood the buffets of time, and to produce 'those qualities by education, which some critics tell us are born with men and never created.

Well, at least we can teach boys of fifteen, by means of a system of cadet corps, the elements of tactical reconnaissance ; and as it is believed that some federation of Boys' Brigades, Church Lads' Brigades, cadet corps, etc., may be arrived at, there is still some hope that a large percentage of men may join the Army in future with a very fair amount of rudimentary knowledge of the soldierly quality of tactical observation, which will be carried on when the recruit has blossomed into the fully trained parade soldier.

¹ The lecturer prefers a national army to a small professional one with auxiliaries.

And so with the makings of the tactically-trained soldier we start on the route march, which from beginning to end is to be a test of all ranks in the art of "what to observe and how to report it," every halt being utilised to deliver a short peripatetic lecture on the part of the officers, with some minor flanking or other reconnaissance thrown in, whereby every man shall take a share in the project set by superior authority.

It may be noted that the cavalry eye or tactical eye is *not* the eye of the hunting man, which is the orb of the egotist, whose sagacity is exercised in merely making short cuts, and not in *close* observation of terrain.

Naturally the main object must be to get the unit into an open order of battle as soon as possible, and to accustom groups of men to march for miles, under the command of subordinates, with very little *personal* supervision from their superiors. By this means only can initiative be developed and instinctive discipline taught. Of course, if mixed troops are available, as in many stations will be the case when the decentralised system of commands has had time to take effect, the combined reconnaissance of small bodies of two or more arms will supersede the isolated marches of battalions, regiments, and batteries.

But the mention of batteries requires an explanation of the term I am about to use, *i.e.*, "the reconnoitring action of artillery." If the expression meant nothing before, it would seem that in face of what we have read and what many officers and men have experienced in the concealment of guns, the use of smokeless powder, has introduced a means of utilising artillery in the responsible work of searching out an enemy in conjunction with, of course, a proportion of the other arms as tactical escort, though the use of the term "escort" is to be sparingly used, the best form of escort being the troops with which the artillery are tactically connected, who would obviously have other duties besides the mere guarding of the guns. The idea then would be that artillery should accompany certain "special patrols" for the purpose of testing the defensive power of an enemy in position, for there must be cases in war when nothing less than artillery could tempt an enemy in a strong position to return the fire of a patrol or a series of mixed patrols converging from different points by concerted action on various objectives.

Of course, this sort of action of artillery is not absolutely novel; but it is very apparent that the specialised training of both cavalry and artillery has often *apparently* precluded the *constant* practice of small detachments of both arms, or of all three arms working together from small garrisons as a mutual or column base. And small garrisons, for several reasons, cannot be entirely done away with, though it may be hoped that in future they will be reduced to the smallest number

compatible with the military duties of detachments so quartered for ceremonial purposes, or safe-guarding of public works, etc.

Artillery.—In the course of a discussion at the R.U.S.I., Colonel Downing, R.A., disputes de Bloch's theory that the rôle of artillery has lost its importance. Here we have the opinion of an expert who has served at the front, and contends that, "properly handled," the cardinal maxims governing the use of artillery are still practical truths. He goes further, for he gives the cheering information that field guns can yet keep down the fire of infantry. More than this, he quotes the case of Pieters Hill, when 90 guns in battery dominated the Boer riflemen; and another case, Rietfontein, where the 18 guns of a brigade (3 batteries) division very soon knocked out the 4 guns worked by the Boers,¹ hitherto with great effect. To this M. de Bloch replies, that 4 guns *versus* 18 is so great a disproportion as to virtually prove *nothing*; but *I* ask *you* to bear in mind, that the lecturer probably omitted to investigate the question as to whether or not the Boer guns were long-ranging *guns of position*, which entirely alters the problem; and if we could have heard from Colonel Downing his definition of the expression "shortly silenced the Boer guns," we should probably learn that even field guns, strained to the utmost in point of extreme range, can, if well handled, and skillfully covered or sheltered, cope with much heavier and more immobile ordnance. For instance, a field gun was concealed on Portsdown Hills in the winter of 1901-2 and by its action entirely baffled a strong infantry battalion sent out purely to *locate* it.

Perhaps this proves in a certain measure my contention that *even* the massing of guns, and still more the dispersion in reconnoitring order, with a certain amount of latitude in the matter of disguising the strength by means of constant moving of batteries—if such heterodoxy may be admissible in this particular case of reconnaissance—might well bewilder and confuse an enemy in position, and serve to so far perplex him, that on the deployment of the real attack and the unmasking of the assailant's actual objectives, he might be held so fast by the false attack of the reconnaissance, as to be unable to transfer his reserves, already, perhaps, moved to the expected but wrongly-judged objective of his assailant, in time to meet the overwhelming current of the real attack. Again, in a sortie from Ladysmith, 2 field guns served to extricate a squadron in difficulties from the fire of concealed riflemen.

Also artillery officers must be encouraged to conduct patrols *with* guns, or the tendency in practising reconnaissance will be to neglect the needs of artillery as to ground, etc.

For though one must strongly oppose the argument brought forward by some, that the modern rifle has levelled up the civilian rifleman to

¹ Two 15-pounder batteries, and one 7-pounder battery; range, 2,400 yards.

such an extent that a large professional Army is therefore not required, it is open to question whether cavalry and artillery should not find time for more and closer association with the other arms and Auxiliary forces, not only at annual manœuvres, but as the rule of life, as the new rôle of Auxiliaries—as a first line on emergency, *must* necessarily lead to close association with the R.A., the more so as Auxiliaries are now to have these guns.

Apply this proposal to the case of all local tactical associations, and encourage the troops quartered in the command to lend *personnel* and *matériel* to the work of all such military or semi-military societies.¹

And though there may not be anything very novel in the idea it is most undoubtedly true, that even in the case of tactical training, particular arms of the Service *may* develop a conservatism which tends to specialise them to an extreme, which, in the case of active service, would impair the effect of joint or combined tactics of the different arms, and never more so than in the execution of a reconnaissance of mixed troops.

For if a case is assumed of an attempt on the old scale of a cavalry reconnaissance of any well-chosen position, what would a mere cavalry reconnaissance from the saddle produce in the form of reliable intelligence? Assuming, if you like, that a general officer already possessed what I may call a fair amount of general *data*, culled from a strategic survey, or from the Intelligence Department at home of numbers in the field, etc., armament, maps, permanent defences, etc.

Launched on the war-path, the mounted patrols, unsupported by mobile rifles, might or might not be allowed to approach within from two to four thousand yards—of what? The position prepared by hasty or improvised field works (for I am not dealing with fortresses which must be sapped up to)? No. But just within field-glass range of the outposts, which I am quite sure would be manned by artillery, for experience has taught us that a few rifles well posted can immensely strengthen the position of isolated guns, and at the same time lend immense confidence to the battery commanders,² if these officers are allowed to deal with so-called escorts in accordance with the “genius of the ballistic arm.”

And here, if you will bear with me, I want to place you in the two-fold position of the enemy with his out-post artillery in close tactical association with the other arms designed not only to protect the batteries, but to emphasise the power of the defence; but also in the rôle of the officer in command of the mixed patrols on the other side, which have

¹ Include rifle clubs, cadet corps, if possible in all local tactical schemes, etc.

² The dispersion of *mobile* guns cannot yet be accepted as axiomatic on occasion until the point has been settled by the Commander-in-Chief.

been ordered out, perhaps a day or two before they first catch sight of the hostile position, with instructions to reconnoitre and report on the position, whether defended on a regular plan or merely improvised to meet the case of a pivot¹ for counter-attack; to hold a strategic or tactical point, or as a link in a chain of a big system of defensive works.

Now if the patrol has ridden obliquely in the direction of a flank, it may be possible to recognise the fact that the line of defences, if they are visible from the distant fringe of the outposts, is broken, crenellated, and provided with out-works, etc., or the reverse. Before the battle of Tel-el-Kebir, it will be remembered that the cavalry reconnoissance conducted frontally at 5 miles distance did not notice or report upon a small out-work in the form of a lunette or redan or blunted redan (the exact shape I did not hear), which might have been a very important factor, had a more wide-awake enemy opposed the march and deployment of the columns of attack. Possibly the patrols will first become aware of the proximity of the enemy by stumbling up against some hostile reconnoitring unit, and of course if prisoners are taken much valuable information may be obtained, after careful sifting of evidence; but failing this lucky chance, the patrols dispersed on a wide front, possibly chiefly to both flanks with temporary observation posts between, if such can be found, are charged with the task of determining the flanks of the position, and of selecting one or more lines of advance for the flank, or real attacks, and for the frontal feint. But an enemy who has learnt to hold his fire is hardly likely to respond to the waspish false attack of mere carbineers, and will content himself with throwing out patrols from his reserves, or even from the outposts to prolong the line or emphasise its defence. Therefore, failing guns and mobile rifles in numbers sufficient to present an imposing *show* of attack or the intention of attack, the commander of a mere horse-patrol would then be reduced to armed espionage of the position, by bivouacking out of sight, establishing observation and connecting-posts, and detaching very loose, "creeping," or special patrols towards the enemy's lines. But here note the disadvantage of neutralising the intelligence of a body of officers, who obviously cannot be spread very thick along the line of detached patrols, and the constant need of pauses, every one of them a source of delay, while new information is passed to the officer in command, after collation from the juniors and fresh modifications introduced.²

But it may appear that I am now depreciating the value of a secret patrol, or series of patrols, engaged in close reconnoissance of a *field*

¹ A space for counter-attack left between obstacles.

² Ideal cavalry officers are expensive and comparatively few; as directors of reconnoissance they are excellent; as *merged* in the line of observation, wastage, this work being the duty of subordinates, and *specially* of mounted rifle scouts.

position; but this is not the case. What I want to bring home to you is, that *of* itself and *by* itself, conducted by cavalry only, it is not reliable when great issues, such as night attacks, are in the wind, unless these secret patrols can be *maintained* in position until the formed units of attack or the advanced guard in the shape of a "reconnaissance in force" is in a position to force the hand of the enemy before he has had time to change front, prolong his line, or erect detached flanking works, or establish positions for enfilade, etc.

Cavalry.—In reply to M. de Bloch, Colonel Graves, a cavalry officer, sounds a note of warning against ringing the death-knell of orthodox cavalry. For he sees in the light of the Boer war, with all its apparent tacit condemnation of nearly all shock action, no reason whatever for a *radical* alteration in the training of the knightly arm, though at the same time he is ready to adopt the applied tactics of a cavalry leader (Captain Moore, 60th Yeomanry Company) in the present war, who found his salvation, and at the same time the discomfiture of 300 Boers attacking a convoy, in the opening out of his cavalry unit to twenty paces from knee to knee, preparatory to a charge on what I presume must have been more or less broken and disordered riflemen, with no backbone of orthodoxy and self-sacrificing discipline capable of overcoming the inborn hatred of the Dutchman of the veldt for shock tactics of any sort. But still more instructive, I think, is his remark that mobility runs a good second to invisibility, and I think that one might even improve on that truth by adding to it the axiom that in many cases invisibility and mobility are synonymous terms. In Captain Moore's case, it is observed that he charged troops in position—more or less.

And so, for the purposes of my argument, I have been able to quote the dicta of officers of both cavalry and artillery, who indirectly support the view that the two arms of which we have heard of late in some quarters the most disparagement in the sense of being most in need of re-organisation, are after all at least as susceptible to changes in the conditions of war as their comrades of the infantry, while it is yet to be proved that the bulk of the cavalry under the command of General French have not learnt the art of combining the *élan* and dash of the horse soldier of romance with the more scientific training forced upon the cavalry by the association with that novel unit, mounted rifles, who, if my idea is a correct one, will be called upon in nine cases out of ten to form what I may term the contact and creeping patrols of any mixed force, charged with the close reconnaissance of an enemy in position or on the march, the cavalry reserving to themselves the major part of the tactical or strategic problem of manœuvring the riflemen into position for actual contact.

And so I put it to you, that without a pivot of operations in an advanced position your cavalry patrols, in face of the intrinsic force, both moral and physical, possessed by the defenders, will never penetrate even a well-planned outpost line, and that even minor patrols must be supported by infantry, trained as such, but with the mobility inherent in the units now so well known as mounted infantry, and in many cases by artillery trained to manœuvre with these mobile riflemen, who will be taught that their rule of life is to reconnoitre *on foot*, but to manœuvre, when out of range, in the saddle. But to come to closer quarters with this conundrum of how to manœuvre artillery in connection with a special patrol, I must first advance the old axiom that the guns demand from the other arms that same close support and protection when on the march which no teachings of this or any other war have modified; though I am prepared to show that by a wide dispersion of the patrols it may well be possible to ambuscade the battery or batteries in positions where they may be in close tactical connection with the reconnaissance and available for immediate use when the observation posts are threatened, or the approach of the main body renders concealment no longer a matter of the first importance. To make a hypothetical case clearer, let us assume a low range of hill country occupied by a field force of the enemy with outposts, with advanced artillery positions on the lower spurs and a rude natural glacis, which is obviously forbidden ground to our own artillery, while perhaps the enemy's flanks are thrown back by the natural contour of the terrain. Now one must conclude that even the scouts of the advanced cavalry patrols will hardly venture on the plain or glacis, but will conceal themselves on the reverse slope of the high ground, if such exists, where at least a kind of chain of posts may be arranged to watch the front; but the riflemen (mounted), and of course part of the cavalry, will move off to the flanks, if indeed their lines of march have not already been directed on divergent roads, relatively, I mean, to the frontal reconnaissance. Meanwhile the riflemen, with their flanks watched and guarded by cavalry, are stealing round the flanks by a long detour, dropping here and there observation and connecting posts, until perhaps the time comes when their cordon is becoming dangerously attenuated and they must either wait for reinforcements or retire. For it is all very well to adjust the balance on paper between the means required and the object to be attained, but this is exactly what the realism of war teaches us that it is impossible to do in half the cases that actually occur of armed reconnaissance. Now in face of this probability, I venture to assume that far away in rear of the patrols several small columns—"potential reserves"—would be slowly advancing with flanks yet more extravagantly expanded than the first columns and prepared to bivouac in close support of the advanced units.

These troops, provided with a proportion of artillery, will be in a position to extend the arc of reconnaissance to the flanks, and will be charged with the police duty of preventing inhabitants or others of passing round the flanks in the direction of the enemy.

But during the dismounted reconnaissance or scouting of the mounted rifles the temporarily immobile units have improvised local and tactical defences, and if by nightfall nothing material has been ascertained of the preparedness or otherwise of the enemy for defence, the cordon of observation secure under the veil of night and behind their entrenchments are ready to bivouac and await instructions for the next day, care being taken to fix the bivouac on the main body of the screen out of the line of the improvised defences. Now if anything has been ascertained by the creeping patrols of the dispositions of the enemy, he will hardly succeed in materially altering his dispositions unnoticed or unheard, so long as the advanced riflemen maintain their position during the night, while if battle is to be given on the morrow, the selected artillery positions will necessarily tend to give an immense advantage to the attack, in contradistinction to the vagueness inherent in any plans based upon information which, if touch has been lost by the return of the screen, can hardly be up-to-date.

Of course it may be urged that I am drawing a fancy picture, in that I am leaving out of account the possibility of my whole system of patrols being routed in detail by a well-concerted counter-attack; but I reply to this, that if the defence has gained enormously by the invention of the magazine rifle and the quick-firer, and smokeless powder, the defenders lose much more in these days than ever they did before by leaving their entrenchments, breastworks or provisional works and deliberately forcing the rôle of defender on their concealed opponents, who being mobile and in small columns, and holding their lines of retreat intact, can move, other things being equal, much more rapidly and knowingly than the counter-attackers; while the skilful use on the part of the commander of the reconnaissance of rear-guard tactics may even irritate the enemy into forcing home his counter-attack and rendering it very difficult to extricate his troops without recourse to reserves, and with losses much in excess of the patrols, who will necessarily know every inch of the ground and where to make a stand to the best advantage.

Now the gist of all I have tried to say is that reconnaissance must now be reckoned as pervading nearly everything that the soldier takes up as a study, and that in order to implant in the individual the germ of the power of observation he must be led to note not only the usual and stereotyped movements and signs of troops on the march, in bivouac, behind entrenchments, etc., but must learn to note the flight of birds, the movements of animals disturbed by the approach of human beings, the

features of country *as he marches*, while the route march will be made a series of continuous and practical exercises in how to manœuvre in small parties, such as stealthy patrols, and how to word his reports or verbal or written messages, all of which, if mere truisms to the ear, are worthy of much labour on the part of the instructor; for in order to get the best out of every man it is necessary to fathom his methods of thought, his measure of intellect, his logical faculty, his power of judging distance, his marksmanship, and generally his idiosyncrasies, which if apparently too much for the grasp of one officer in command of one hundred men, such as a company or squadron, can be attained by means of a system which renders subordinates capable of appreciating the various temperaments and abilities of the maniple under their charge and acting as under-studies of their captain.

And so, in conclusion, I would add just a short scheme of instruction of the trained soldier in the rudiments of practical reconnaissance.

In the first place, impress upon all subordinates that, unlike the service of mere security, advanced guards, etc., reconnaissance must demand devious ways, while the patrols of an advanced guard are bound to go ever forward, as time may be an element in the march.

Further, that reconnoiters should usually move obliquely to their true line of advance as regards the enemy's front; that tactical connection with other patrols must be kept up by every ingenious resource, including secret signals, connecting files specially trained, and the like.

Patrols must be accustomed to lie dark for hours together, and must bear in mind that time is of less importance than accurate information. But before men are allowed to undertake actual practice against a skeleton enemy they should be sent out on minor tactical marches, with special instructions as to *data* required, but not to be interfered with by the N.C.O. in charge in the matter of collecting these *data*, for the first thing, after a soldier or officer has joined a unit as trained, is to ascertain his mode of thought, his originality, and the like.

For instance, four patrols sent out on identical errands, and with precise instructions, if guarded against inter-communication, will probably, even if each man has his separately defined work to carry out, return with very different reports, if the work is new to them and the business of the N.C.O. in charge is therefore to sift the information and learn how to elicit the real facts by cross-examination, and so assist his officer in estimating the relative values of individuals in the art of observation. For in these days the fact cannot be made too much of that every step of a soldier in advance is a species of reconnaissance, while the means of teaching it are to send out patrols—first alone, to report on inanimate objects, and then as units of a combined movement of all arms, to observe from all points of view troops in dispersed order,

behind entrenchments, and in all formations and attitudes. Next to analyse and report upon simple movements of hostile troops in some tactical formation and manœuvring with some tactical object.

Again, let the element of surprise enter into the orders given to units who have arrived at some measure of perfection by, for instance, suddenly when on the march detaching a special flanking patrol, supported or to form its own support, to make a report on a village or eminence, say, some mile or so on a certain bearing, the N.C.O. or officer as far as possible leaving the collation of intelligence to the men, while carefully watching their movements and directing only in a general way, and guarding them against losing their way, etc.

For I cannot say too much, perhaps, as to leaving men to work out problems for themselves, and the instructor preserving silence until the operations have come to an end, when a careful and skilled umpire's verdict should be invaluable in correcting mistakes, discovering latent talent, and teaching that instinctive drill and discipline of individuals and small units, which enables them to work out schemes based upon silent drill and secret signals and the like, which are and must be our best means of coping with potential enemies, who have learnt perhaps by the study of nature what we have to teach by artificial means.

And last of all, teach men and officers to argue from the *unknown*, and don't accustom them to start on their man hunt with too many established facts, or the result will be that in war they will be at a loss if launched *en l'air*, as it were, to argue out the spoor of the scouts or patrol, about which little can be told them that is reliable.

Remembering always that at times, I might almost say at *most times*, verbal messages of very material import must be given and carried, and even the knack of carrying a message correctly, as I have often proved at manœuvres, is to some people a lost art.

To this end dispatch a reconnoitring unit in the *first* stages of its higher education to some distance with alternately written and verbal instructions, say to extend at a certain spot, or at a certain distance from the starting-point, then to change direction east or west, and then to extend again or close to form an entrenching party, further to estimate the thickness of certain walls, the general slope of an eminence in their front and finally demand an exact account of the approach of the patrol towards their objective, collated from the men, checked by the sergeant, and eventually commented upon by the officer.

Expand some system as this, with its infinite scope for original talent, to the battalion, the mixed brigade, the detachment of perhaps one battery and one squadron, and again at the annual manœuvres to the division and the army corps, and one begins to see that, like the Boer war at the present stage, it may *seem* to have no ending, for as the course

of instruction proceeds, still as one problem succeeds another, others spring into view, but always, I think, possessing this great advantage over much of our routine work, that the study need never become monotonous, because as the scene changes so does the problem, while the ingenuity of the other side provides the stimulus of competition and rivalry.

And if there is one word to add to this very short and discursive notice of a subject, which is, to my mind, the main cog-wheel of military education, it is this, that manœuvre drill must be taught in the most *realistic* form possible, with every variety and element of surprise, while those who teach should in every possible way encourage individuals to work up to their objective in their *own* way, thus putting their inventive genius to the test and arriving at a fair estimate at the end of a season of the relative value of the unit and the individual in the art of military espionage and reconnaissance, always recognising the fact that the art must be made to embrace nearly all that we sum up in our drill and textbooks, as Applied Tactics, which more than ever before are now becoming the substitute for close order drill, which is merely a means to an *intermediate* end, *i.e.*, the manœuvre drill of troops of all arms, and the prologue of that realistic form of tactical exercises, which are destined to prepare officers and men for the confused order of, and "the fog of war."

NAVAL NOTES.

HOME.—The following are the principal promotions and appointments which have been made: Rear-Admiral—Sir W. Dyke Acland, Bart., to be Admiral-Superintendent of Gibraltar Dockyard. Captains—G. A. Primrose to "Royal Sovereign"; G. H. B. Mundy to "Isis"; E. H. Bayly, C.B., to "Algiers" for Medway Dockyard Reserves; W. H. Graham to be Captain-Superintendent of Sheerness Dockyard; C. G. Dicken to "Duke of Wellington" as Inspecting-Captain of Home torpedo-boat destroyers; R. B. Farquhar to "Intrepid"; C. D. Granville to "Rainbow"; the Hon. H. Tyrwhitt to be Private Secretary to First Lord; J. E. Bearcroft, C.B., to "Resolution"; H. L. Fleet to "Æolus"; C. Burney to "Empress of India." Commanders—P. H. Colomb to "Undaunted"; E. H. Martin to "Hibernia"; H. J. Clarke to "Blonde"; F. M. Walker to "Calypso."

The Review of the Fleet assembled at Spithead by His Majesty the King passed off successfully in fine weather on Saturday the 16th ult. as arranged, although the illuminations were spoilt, as far as the sightseers were concerned, by a heavy thunder-storm. On the forenoon of Monday, the 18th, the Royal Yacht, escorted by the flotilla of destroyers, proceeded to an anchorage off Bembridge and from there His Majesty watched the combined fleet steam past in two columns, four cables apart; in consequence of the inclement state of the weather the proposed tactical exercises did not take place, but His Majesty was pleased to express his extreme pleasure at the excellent station kept by the ships as they went past. After coaling at Portland the Channel and Home Cruiser Squadrons proceeded to join the flag of Admiral Sir C. Dornville in the Mediterranean, arriving at Gibraltar on the 27th ult., and at Malta on the 2nd inst.

The first-class battle-ships "Royal Sovereign" and "Trafalgar" paid off at Portsmouth on the 29th ult., the "Royal Sovereign" being recommissioned the same day by the captain and crew of the "Trafalgar," whose place she takes as port-guard-ship at Portsmouth; it was intended that the "Trafalgar" should take the place of the "Hero" as tender to the "Excellent," but in view of the extensive repairs she requires it is probable that the "Colossus" will be selected instead for that duty. The armoured cruiser "Undaunted" was commissioned on the 26th ult. at Devonport for sea-going tender to the "Cambridge." The second-class cruiser "Isis" is to be commissioned as tender to the "Britannia." The third-class battle-ship "Dreadnought" commissioned at Devonport on the 20th ult. as tender to the "Defiance," torpedo-school-ship at that port. The first-class cruiser "Endymion" arrived at Spithead on the 14th ult. from China and paid off at Chatham on the 4th inst. The second-class cruiser "Scylla" with relieved crew of the "Tribune" from the West Indies arrived at Spithead on the 15th ult., and paid off on the 2nd inst. at Chatham. The third-class cruiser "Psyche" arrived at Plymouth from the West Indies on the 20th ult., where she has been relieved by the second-class cruiser "Retribution," and paid off on the 5th inst. at Devonport. The second-class cruiser "Latona" has been commissioned at Portsmouth by Captain R. H. S. Bacon, D.S.O., to take the place of the first-class torpedo-gunboat "Hazard" as depot-ship for the submarines, three of which have already arrived there from Barrow.

Re-organisation of the Home Fleet.—As soon as the necessary arrangements are made the port-guard and coast-guard ships, with their gun-boat and destroyer tenders,

will be constituted the Home Fleet, while the present port-guard-ships will be withdrawn from their present duties, and, being kept at sea continuously, except when undergoing their half-yearly refit, will be known as the Home Squadron. The present plan of bringing the Home Fleet to its full strength for the periodical exercises is to be continued, and the Home Squadron is to be the permanent nucleus of the Fleet; but the two terms are to be recognised as the designations of the force in its reduced or complete proportions.

Steam Trials.—The new first-class battle-ship "Exmouth" has completed her steam trials successfully. At the 30 hours' four-fifths power the results were:—Vacuum, 27·6 starboard, 27 port; I.H.P., 6,934 starboard, 6,840 port—total, 13,774; revolutions per minute, 113·2 starboard, 112·8 port; speed, 18 knots; coal consumption per I.H.P. per hour, 1·95 lbs. At the 8 hours' full-speed trials the engines developed 18,346-I.H.P., giving a mean speed of 19·05 knots, with a coal consumption of 2·13 lbs. per I.H.P. per hour.

The new first-class armoured cruiser "Bedford" has also gone through her official trials. The mean results of the first trial with the engines working at low pressure were as follows:—Steam at engines, 238 lbs.; in boilers, 255 lbs.; vacuum, starboard 26·8 inches, port 26·3 inches; revolutions, starboard 85, port 84; I.H.P., starboard 2,250, port 2,272—total, 4,522; speed, 14·92 knots; coal consumption, 1·91 lbs. per I.H.P. per hour. The mean results of the second trial at four-fifths power were:—Steam, in boilers 246 lbs., at engines 222 lbs.; vacuum, starboard 25·6 inches, port 27·1 inches; I.H.P., starboard 7,952, port 8,053—total, 16,005; air pressure, '26 of an inch; speed, 21·2 knots; coal consumption, 1·97 lbs. per I.H.P. per hour. At the 8 hours' full-speed trial the engines worked excellently throughout, but the estimated speed of 23 knots was not maintained, the mean being 22·7 knots. This result was the more disappointing because the engines were driven at considerably above the 22,000-I.H.P. calculated as the maximum when they were designed. The mean results were: Steam in boilers, 285 lbs.; at engines, 228 lbs.; air pressure in stokeholds, 0·32 inch; vacuum, starboard 26 inches, port 25·5 inches; revolutions, starboard 149·2, port 101; I.H.P., starboard 11,286, port 11,171—total, 22,457; coal consumption 2·12 lbs. per I.H.P. Some alterations will be made in her propellers, and the ship will be tried again at full speed.

Niclausse Boiler Trials.—The torpedo-gunboat "Seagull" has completed her series of trials with Niclausse boilers for the information of the Boiler Committee. At her first 8 hours' trial at 1,000-I.H.P. the actual mean power was 1,029, when the coal consumption worked out at 2·28 lbs. per unit of power per hour, and the make-up feed water necessary to replace wastage was '32 lb. per unit of power per hour. She next ran for 8 hours at nominally 3,000, but actually at 2,804-I.H.P., when the coal consumption was 2·15 lbs. per unit of power per hour, and the make-up feed water required was '67 lb. Her third run was intended to extend over 50 hours at 2,500-I.H.P., but at the end of 18 hours she ran into a fog, and the trial had to be suspended for 6 hours. The coal consumption during this part of the run worked out at 2·14 lbs. per unit of power per hour, and the make-up feed water required was '35 lb. The trial was resumed at 2,300-I.H.P., and while there was no appreciable difference in the consumption of make-up feed water the coal consumption advanced to 2·47 lbs. per unit of power per hour. The vessel had then to ease down through stress of weather, and as the coal was running short the trial was not resumed. It was originally intended to run a further trial at 800-I.H.P. with only two boilers in use, but this experiment has been abandoned, and the "Seagull" is now to resume her instructional duties with stoker classes. There was no loss of water through leakage at any of the

runs. One of the great advantages of the Niclausse over the Belleville boiler was shown to be the absence of fusible plugs, the loss of which in the Belleville boiler has been the source of considerable trouble. Speed was not taken at any of the "Seagull's" trials.

Boilers for New Ships.—The Admiralty have decided on the following types of boilers for the six first-class cruisers of the 1901-2 programme now under construction :—

H.M.S. "Devonshire" (Chatham Dockyard).—A combination of 4-5ths Niclausse and 1-5th cylindrical boilers.

H.M.S. "Hampshire" (Sir W. G. Armstrong, Whitworth & Co.).—A combination of 4-5ths Yarrow and 1-5th cylindrical boilers.

H.M.S. "Carnarvon" (Messrs. Beardmore & Co.).—A combination of 4-5ths Niclausse and 1-5th cylindrical boilers.

H.M.S. "Roxburgh" (The London and Glasgow Shipbuilding Company).—A combination of 4-5ths Dürr and 1-5th cylindrical boilers.

H.M.S. "Argyll" (The Greenock Foundry Company).—A combination of 4-5ths Babcock and Wilcox and 1-5th cylindrical boilers.

H.M.S. "Antrim" (Messrs. J. Brown & Co.).—A combination of 4-5ths Yarrow and 1-5th cylindrical boilers.

Armour Plate Trials.—An important trial took place at Whale Island recently of heavy armour submitted by Sir W. G. Armstrong, Whitworth & Co., Ltd., from their Openshaw Works, Manchester. The plate measured 10 feet by 7 feet by 9 inches, or what is known as a 360-lb. plate, this being the weight per square foot, though its actual weight was 350 lbs., which placed it on the thin side. The quality was the Openshaw cemented or hard-face armour. The trials were carried out under the supervision of Captain Arthur Barrow, by Lieutenant S. R. Drury-Lowe, of the "Excellent." The standard test for this class of plate consists of firing three rounds from the 9-2-inch gun at a velocity of 1,850 foot-seconds to 1,900 foot-seconds with 380-lb. Holtzer armour-piercing shell. The first round was fired at 1,909 foot-seconds, and the plate was found to offer complete resistance. The projectile was broken up into numerous pieces, the head only being fused into the surface of the plate, the maximum penetration being 2-6 inches. The second round struck with a velocity of 1,919 foot-seconds, and the projectile was broken up in a similar manner to the first, the penetration being the same as for the first round. The third round followed with 1,882 foot-seconds. The shot again broke up with a maximum penetration of 2 inches. At the conclusion of the trial the plate was absolutely free from any cracks, and completely fulfilled the requirements of the Admiralty for admitting armour of this class for use in His Majesty's ships, especially as the plate was on the thin side and the velocities were on the high side. Messrs. Sir W. G. Armstrong, Whitworth & Co., Ltd., are manufacturing armour of this quality for the recently ordered Chilean battle-ships now building at Elswick, and this plate represents the quality to be supplied for the new cruisers and battle-ships of the "King Edward VII." class.

The Newfoundland Naval Reserve.—The third-class cruiser "Calypso" was commissioned at Devonport on the 3rd inst. as drill-ship for Newfoundland Naval Reserve. The officers appointed to the "Calypso" have been specially selected for the duties of training Reservemen, and the intention at present is to establish a branch, purely for seamen. But if the scheme works out satisfactorily, a branch for the stoker class will also be established. Practice batteries will be constructed at convenient opportunities for embarking on ships on the North America and West Indies station, for periodical cruises.—*Times, Naval and Military Record, etc.*

The Return of Prize-Firing for 1901.—The following interesting and expert analysis of the recently issued Return of the annual prize-firing is taken from the *Times* :—

The returns of the annual prize-firing from heavy guns in the Fleet in 1901 have been published, and on the whole there is an improvement on the marksmanship of 1900. It will, however, be sometimes convenient to recur to the returns of 1899 to see how far the improvement has been real or imaginary.

The 16·25-inch and the 13·5-inch guns are, as before, scheduled together, and, adopting the Admiralty classification, we find that, whereas in 1899, 48 of these guns competed with a mean of 14 hits per gun per minute, in 1900 there were only 44 guns with a mean of 12 hits per gun per minute. In 1901 the number of guns was again 48, and the mean of hits was 16. Apparently there is some injustice in bracketing guns of the two calibres together, but the figures show that the 16·25-inch gun does not appreciably lower the average of the 13·5-inch. For instance, there were 13 ships firing guns of the two calibres, and the worst practice was made by the "Benbow," which fired only 29 of a round per gun per minute, while the percentage of hits was only 04. In 1899 the same ship fired 33 of a round per gun per minute and made 12 of a hit in the same time. In the same year the "Sans Pareil" fired 29 of a round per minute and made 04 of a hit, whereas in 1901 the "Sans Pareil's" figures go up to 33 and 20 respectively. In other words, last August, when the prize-firing took place, the heavy guns of the "Benbow" could secure one hit in 25 minutes, and the similar guns in the "Sans Pareil" could obtain a hit every 5 minutes. Outclassed as is the 110-ton gun, in theory the firing by the "Sans Pareil" puts into the shade the results from some of the 13·5-inch guns. The "Anson," with the latter weapon, is only a little worse than the "Benbow," for in two runs of 6 minutes each she fired 18 rounds from her four 13·5-inch guns and made but 3 hits. She thus fired 37 of a round and made 06 of a hit per gun per minute, whereas in the same time with the same type of gun the "Royal Oak" fired 26 rounds and made 13 hits. In fact, the "Royal Oak" did a trifle better even than this, for, taking the actual time spent on the runs she made 54 of a round per minute and 27 of a hit. Every other round, therefore, was a hit, and in 12 minutes each gun fired 6·5 rounds. Only one other ship with 13·5-inch guns made a more rapid fire, the "Resolution's" guns averaging 7 rounds in the two runs, but while the "Royal Oak" made 27 of a hit per gun per minute, the "Resolution" made only 18. Taking rapidity of hitting rather than rapidity of firing as the ground of merit the two ships that most nearly approached the precedence of the "Royal Oak" are the "Royal Sovereign" and "Hood," each with 25 of a hit per gun per minute. Both ships were in the Mediterranean, and both fired exactly the same number of rounds in the same time. Two ships—the "Repulse" in the Channel and the "Empress of India" in the Mediterranean—tie with 20 of a hit per gun per minute, but while the "Repulse" fired 25 rounds the "Empress of India" fired 22. The "Empress of India" with 22 rounds secured 10 hits, and the "Repulse" with 25 rounds also made 10 hits, while the "Resolution" in 28 rounds, fired in the same limit of 12 minutes, made only 9 hits, or 18 of a hit per gun per minute. In the same limit of time the "Camperdown" disposed of only 18 rounds, with 5 hits, or 1 of a hit per gun per minute. The "Ramillies," in the Mediterranean, and "Trafalgar," a home guard-ship, tie with 12 of a hit per gun per minute, and each fired 24 rounds. The only other ships that fired exactly the same number of rounds were the "Royal Sovereign" and "Hood," and they both made 25 of a hit per gun per minute, thus beating the "Ramillies" and "Trafalgar" by 2 to 1. The firing of the "Howe" was slow and imperfect, as she got through only 19 rounds, which yielded 3 hits, or 06 of a hit per gun per minute. In

1899, 48 of the two heaviest types of guns fired 252 rounds and made $\cdot 14$ of a hit per gun per minute; in 1901 the same number of guns fired 267 rounds, and made an average of $\cdot 16$ of a hit.

The improvement in marksmanship with the 12-inch Mark VIII. guns is more perceptible. In 1899 these guns fired 187 rounds, with an average of $\cdot 28$ of a hit per gun per minute; in 1900 the figures were 211 and $\cdot 30$; and in 1901, 279 and $\cdot 33$ respectively. The conditions of firing with this gun were:—Range, between 1,400 and 2,000 yards; speed, 8 knots; time, one run of 6 minutes. The "Glory" fired 28 rounds, and the "Mars," "Ocean," and "Prince George" 26, but the firing was slower on all the other ships. The average of $\cdot 33$ of a hit per gun per minute was exceeded by the "Ocean" on the China station, with $\cdot 58$; the "Mars," in the Channel Squadron, with $\cdot 45$; the "Canopus," in the Mediterranean, with $\cdot 41$; and the "Illustrious," in the Mediterranean, with $\cdot 37$. The best and worst results were achieved on the China station, for there the "Ocean" made 14 hits in 26 rounds, and the "Goliath" made only 5 in 22. Again, taking rapidity of hitting as the basis of merit, the firing with this type of gun gives the following order of precedence:—"Ocean," $\cdot 58$; "Mars," $\cdot 45$; "Canopus," $\cdot 41$; "Illustrious," $\cdot 37$; "Glory," "Magnificent," "Majestic," and "Prince George," $\cdot 29$; "Hannibal," "Jupiter," and "Victorious," $\cdot 25$; "Goliath," $\cdot 20$. The slowest firing ship was the "Illustrious," which, however, made 9 hits for 19 rounds. While the average of hits per gun per minute shows an improvement, the percentage of hits to rounds fired marks very little progress, the figures for the last three years being:—1899, 33·68; 1900, 35·07; 1901, 34·05.

Only the "Collingwood" and "Colossus" fired with an earlier pattern 12-inch gun, and the results are not, therefore, of any significance, though it may be of passing interest to mention that the "Colossus" secured 2 hits for every 1 scored to her rival. When we come to the 10-inch B.L. gun the parallel column indicating the differences between 1900 and 1901 shows a *minus* quantity in every detail, and the figure of merit is appreciably lowered by the very bad shooting of the "Sans Pareil," which in 1901 made an average of only $\cdot 08$ of a hit per gun per minute, whereas in 1900 the figure was $\cdot 25$. The conditions, as in the 16·25-inch and 13·5-inch competitions, were:—Range, between 1,400 and 2,000 yards; speed, 8 knots; time, two runs of 6 minutes each. The "Devastation," which headed the list in 1900 with $\cdot 52$ of a hit per gun per minute, retained her supremacy in 1901 with $\cdot 54$; but the "Thunderer," which was the "Devastation's" equal in 1900, did not fire last year. The "Barfleur" went up from $\cdot 37$ in 1900 to $\cdot 48$ in 1901, while the "Centurion" dropped from $\cdot 31$ to $\cdot 18$, and the figure for the "Renown" in both years was $\cdot 27$. The extremely low average is mainly due to the "Sans Pareil" having, in the 12 minutes, fired only 3 rounds, probably due to bad weather, so that, while the rate of fire of the "Barfleur" was $\cdot 98$ of a round per gun per minute, that of the "Sans Pareil" was only $\cdot 25$, while the "Barfleur's" hits per gun per minute were $\cdot 48$ against the "Sans Pareil's" $\cdot 08$. Nevertheless, though the average number of rounds fired by guns of this pattern was only $\cdot 01$ per gun per minute less than in 1900, the hits were $\cdot 06$ less.

The "Terrible" was the only ship that fired with the 9·2-inch Mark VIII. gun, and the parallel column shows, except in the number of guns carried, a *plus* quantity all along the line. The conditions, as last year, were the same as for the 12-inch Mark VIII. gun. In 1900 the two 9·2-inch weapons carried by this ship fired 15 rounds; in 1901, 22; and the hits advanced from 9 to 14. In 1900 each gun averaged 7·5 rounds; in 1901, 11 rounds; and the hits per gun went up from 4·5 to 7. The percentage of

hits to rounds only advanced from 60 to 63·63, but the hits per gun per minute went up from ·75 to 1·16.

Thirteen ships competed with the 9·2-inch (below the Mark VIII. pattern) and 8-inch B.L. guns in 1900 and 1901, against 14 in 1899, and if we again take the number of hits per gun per minute as the ground of merit we once more find some cause for satisfaction, but it is scarcely adequate to the impetus which the Admiralty have sought to give to better shooting. In 1899 the figure was ·23; in 1900, ·20; and in 1901, ·28, so that, while there is an appreciable improvement on 1900, the result does not compare too favourably with that of 1899. The conditions were the same as with the 16·25-inch, 13·5-inch, and 10-inch guns. The "Orlando" was only equalled by the "Aurora" in rapidity of fire, both getting off 20 rounds, or 10 rounds per gun, at the rate of ·83 of a round per gun per minute; but the hits of the "Orlando" were ·41 to the "Aurora's" ·29 per minute. Taking the number of hits per gun per minute, the order of precedence is as follows:—"Orlando," ·41; "Theseus," "Gibraltar," and "Crescent," ·33; "Aurora," "Australia," "Endymion," and "Warspite," ·29; "Abyssinia" and "Magdala," ·27; "Blenheim" and "Galatea," ·20; "Severn," ·16. The "Theseus" was the only ship that exceeded the "Orlando's" rapidity of fire, her two guns disposing of 21 rounds against the "Orlando's" 20, but whereas the "Orlando" made 10 hits, the "Theseus" made only 8. In no class of gun is the average of merit, having regard to the number of ships competing, so evenly distributed, the highest figure being ·41 of a hit per gun per minute, and the lowest ·16. The number of rounds fired was 271 in 1901, 289 in 1900, and 288 in 1899.

In 1900 and 1901 the "Sphinx" was the only ship that went to prize-firing with the 6-inch B.L. gun. In the former year she fired 5 rounds; in the second year 7. In each year she hit the target once, thus making at each effort ·16 of a hit per gun per minute.

Despite a few examples of bad practice, the average of the 6-inch Q.F. gun shows a most satisfactory advance. In 1899, when 2,347 rounds were fired, the hits per gun per minute were 1·07; in 1900 the figures were 2·717 and 1·51, and in 1901, 3,384 and 1·81; so that 1900 was an improvement on 1899 of ·46 and 1901 was ·30 better than 1900. No less than 48 ships competed with this type of gun, and the highest figures of merit are:—"Terrible," 4·25 hits per gun per minute; "Astræa," 3·5; "Illustrious," 2·83; "Royal Sovereign," 2·8; "Ocean," 2·66; "Royal Oak," 2·6; "Theseus," "Ramillies," and "Mars," 2·55; "Isis," 2·5; "Crescent," 2·33; "Andromeda," 2·25; "Majestic," 2·16; "Hood," 2·1; "Cambrian," 2. Twenty-seven ships made from 1 to 2 hits per gun per minute, and 7 made less than 1. The "Vindictive" made the worst practice in the Fleet, securing only 3 hits for 28 rounds. The conditions were—target, service prize-firing, with wings removed; range, 1,400 to 1,600 yards; speed, 12 knots (two-fifths power not to be exceeded); time, one run of 2 minutes. The ships with the most rapid fire were the "Astræa," with an average of 10·5 rounds per gun; "Canopus," 10·83; "Goliath," 10; "Majestic," 10·25; and "Terrible," 10·66. The slowest fire was 5·5. The highest percentage of hits to rounds fired was in the "Terrible" with 79·68, the "Astræa" and "Royal Sovereign" coming next with 66·66, followed by the "Royal Oak" with 63·09. The "Vindictive" is the only ship with a less percentage than 20, her figure being 10·71. If we take the percentage of hits to rounds fired as a criterion we find a steady and satisfactory improvement, the figure for the whole Fleet in 1899 being 28·29; for 1900, 36·95; and 1901, 43·32. Twenty-seven ships were below the average.

At the prize-firing in 1899 there were two hundred and two 6-inch B.L. guns that had been converted into quick-firers, and they disposed of 1,227 rounds; in

1900 there were 175 guns, which fired 1,057 rounds; and in 1901, 167 guns, which discharged 1,048 rounds. Twenty-one ships practised with this gun in 1901, against 24 in 1899, and in process of time the type of weapon will become obsolete. The conditions of firing were the same as with the 6-inch Q.F. gun, but the most rapid rate of fire was 8.5 rounds during the 2 minutes' run, and the slowest was 5. Only four ships, however, scored more than 1 hit per gun per minute, while the "Archer," on the Australia station, made only 1 hit in 31 rounds from her six guns. But if high results cannot be expected from the gun, the averages of three years do not indicate improved training, for while in 1899 the hits per gun per minute work out at .85, in 1900 to .66, in 1901 the figure is .78. The "Aurora," which had the most rapid fire, made .95 hits per gun per minute, getting in 19 hits for 85 rounds. The "Amphion," with 7.7 rounds per gun, made an average of 1.35 hits per gun per minute; the "Arethusa's" average was 6.9 and 1.4 respectively, the "Marathon's" 7.16 and 1.91, and the "Phaeton's" 7.6 and 1.55.

Thirteen ships fired with the 5-inch and 4-inch B.L. gun, and, though the weapon may not be regarded as one of great fighting value, it is to be regretted that the practice shows no sign of improvement. In 1899 the average of hits per gun per minute was .43, in 1900, .50, and in 1901, .34. Six out of the thirteen ships—the "Buzzard," "Icarus," "Nympe," "Plover," "Sphinx," and "Lizard"—were above the average; but the highest point was only .54 and the lowest .16. The highest number of rounds fired in a run of 6 minutes was 120 from the fourteen guns of the "Pylades," and the lowest was 32 from the four guns of the "Sphinx." For 779 rounds there were 194 hits.

Nor, in spite of a few brilliant examples, can we find much consolation in the returns from the 60 ships that went to the targets with their 4.7-inch Q.F. guns. In 1899, 312 guns fired 3,386 rounds and made 1,137 hits, which, with a time condition of one run of 2 minutes, works out at 1.86 hits per gun per minute. In 1900, 244 guns fired 2,608 rounds, and made 783 hits, bringing the average down to 1.60 hits per gun per minute. In 1901, 322 guns fired 3,629 rounds, and the average was 1.93 hits per gun per minute. The improvement, therefore, upon 1899 is inappreciable, when we bear in mind that the "Barfleur" in 1901 made an average of 5.7, and the "Charybdis" of 5.41. The next in order of good shooting is the "Centurion," with 3.45. No less than 17 ships made less than 1 hit per gun per minute, while the "Alarm" fired 18, the "Renard" 16, and the "Dryad" 10 rounds without once hitting the target. The most rapid rate of fire was 8.91 rounds per minute by the "Charybdis," and she came next in marksmanship to the "Barfleur," whose guns was fired at the rate of 7.95 rounds per minute. The number of rounds fired per minute by the guns that missed the target consistently was 5 in the "Dryad," 4.5 in the "Alarm," and 4 in the "Renard."

Only the "Lapwing" fired with the 4-inch converted Q.F. gun, and only the "Hotspur" and "Monarch" with muzzle-loaders, and the return is of no interest beyond showing that the "Monarch" fired 16 rounds and the "Hotspur" 6 rounds from the 12-inch M.L. gun without once hitting the target, so that, whereas in 1901, 22 rounds produced no results, in 1900, 18 rounds gave 3 hits, while in 1901 the 9-inch M.L. of the "Monarch" gave 7 hits for 25 rounds, and in 1900 it gave 1 hit for 10 rounds.

The report winds up by saying that no returns, or returns which do not affect the abstract, were rendered by 45 ships—namely, the "Apollo," "Andromache," "Albion," "Barracouta," "Beagle," "Brilliant," "Brisk," "Cæsar," "Calliope," "Circe," "Cleopatra," "Cressy," "Diadem," "Dwarf," "Eclipse," "Esk," "Formidable," "Forte,"

"Fox," "Hazard," "Implacable," "Jaseur," "Juno," "Magpie," "Melita," "Naiad," "Nile," "Niobe," "Partridge," "Penguin," "Philomel," "Rattler," "Revenge," "Royal Arthur," "Rupert," "St. George," "Seagull," "Sharpshooter," "Sheldrake," "Skipjack," "Speedwell," "Talbot," "Terpsichore," "Thrush," and "Wallaroo."

If we accept hits per gun per minute as the standard of efficiency, the following table will show at a glance how little naval gunnery has progressed in the last three years :—

	1899.	1900.	1901.
16.25-in. and 13.5-in.	14	12	16
12-in. Mark VIII.	28	30	33
12-in. Mark I. to VII.	13	10	12
10-in. B.L.	26	39	35
9.2-in. Mark VIII.	—	75	1.16
9.2-in. (less than Mark VIII. and 8-in.)	23	20	28
6-in. Q.F.	1.05	1.51	1.81
6-in. Q.F.C.	85	66	78
5-in. and 4-in. B.L.	43	50	34
4.7-in. and 4-in. Q.F.	1.86	1.60	1.93

In conclusion, we may apply another test to see how far Lord Selborne's maxim of "Gunnery, gunnery, gunnery" has been practically applied, and to do this we may go back to the target practice of 1896, and we can then judge of the progress made in five years. In 1896 the "Benbow" and "Sans Pareil" fired 13 rounds from their 16.25-inch guns without touching the target; in 1901 they fired 15 rounds and hit the target 6 times. In 1896 the "Camperdown's" 13.5-inch guns fired 15 rounds with 6 hits, giving 40 per cent. of hits to rounds fired. In 1901 the "Hood," "Royal Oak," and "Royal Sovereign" produced an average of 50 per cent. We may leave out of account the 12-inch gun as it existed in 1896, as it bears no relation to the weapon now carried in the Channel Squadron ships. The 10-inch gun of the "Barfleur" in 1896 is the same as she carries to-day, and then she made 44.8 per cent. of hits, against 48.93 in 1901, and was beaten by the "Devastation" with 59.09. In 1896 the "Impérieuse" made 81.5 per cent. of hits with her 9.2-inch gun; the best return in 1901 comes from the "Terrible," which has an improved pattern of gun, with 63.63. In 1896 the "Porpoise," with the 6-inch B.L. gun, made 67.3 per cent. of hits; in 1901 the "Terrible," with the improved 6-inch Q.F. gun, made 79.68 per cent. In 1896 the "Blonde" made 67.2, and the "Karrakatta" 66.6 per cent. of hits with the 4.7-inch Q.F. gun; in 1901 the "Barfleur" made 71.69. These are the highest results for the two years specified, so that whether we compare the averages of 1899 and of 1901, or whether we compare the best results of 1896 and of 1901, the figures do not convince us that Lord Selborne's axiom is more than a phrase.

FRANCE.—The following are the principal promotions and appointments which have been made: Vice-Admirals—A. P. L. Bienaimé to be Maritime Prefect and Commander-in-Chief at Toulon; C. L. T. Courrejolles to be Maritime Prefect and Commander-in-Chief at Lorient; G. Pottier to be Commander-in-Chief of Mediterranean Fleet. Capitaine de Vaisseau—A. D. Somborn to "Chanzy." Capitaines de Frégate—H. M. Rozier to "Durance"; J. P. Barrière to command of submarine mines at Toulon; M. P. Hautefeuille to "Léger"; E. F. Le Prieur, E. M. Lemogne, and E. V. Goudot, to be Capitaines de Vaisseau.

Vice-Admiral Pottier, who has been selected in place of Vice-Admiral de Beaumont to succeed Vice-Admiral de Maigret on the 1st October in command of the Mediterranean Fleet, has only recently returned from a two years' command of the fleet in China, having been the first vice-admiral to hold that appointment; he is sixty-three years of age and will only hold his new appointment for a year. Vice-Admiral Roustan, the Maritime Prefect at Brest, who was to have succeeded Vice-Admiral de Beaumont at Toulon, is according to the new arrangements to remain at Brest, and Vice-Admiral Bienaimé, who lately gave up the appointment of Chief of the General Staff at the Ministry of Marine to become Maritime Prefect at Lorient, has been transferred to Toulon instead, and he will probably succeed Vice-Admiral Pottier in command of the Mediterranean Fleet next year, as the Maritime Prefecture of the great Mediterranean Dockyard is generally the stepping-stone to the command of that fleet. Vice-Admiral Bienaimé is the youngest vice-admiral on the list and will be sixty next February. Rear-Admiral Merleaux-Ponty, commanding the naval forces in Tunis, died suddenly at Paris on the 30th ult.; he was noted as mainly responsible for the development of the arsenal at Bizerta, in which he had shown the greatest zeal and interest. During the manoeuvres he had been acting as Chief of the Staff to Admiral Gervais, and he had come to Paris to draw up the Report of the Naval Manoeuvres for the Minister of Marine. He was the youngest rear-admiral on the list, being only 52 years of age.

The combined fleet arrived at Toulon on the 6th ult. on the termination of the manoeuvres. On the following morning all the rifle companies and field guns of the fleet were landed for inspection by the Commander-in-Chief, Vice-Admiral Gervais, who was accompanied on to the ground by Vice-Admirals De Maigret and De Courthille, by his Chief of the Staff, Rear-Admiral Merleaux-Ponty, and the Divisional Rear-Admirals, Boutet, Marquis, and Péphau; at the conclusion of the review, Vice-Admiral Gervais, who will be retired for age in a few weeks, took a final leave of the officers in a short speech, in which he conveyed to officers and men alike his congratulations on the high state of efficiency of the fleet he had had the honour to command. After fifty years devoted to the service of the Navy, he said, he had arrived at the natural term of his career, and having done his duty to the best of his ability and to the satisfaction of his conscience, he must now leave the future to younger men. He would ever retain a lively recollection of the long days spent in the midst of the fleet, "that centre of honour and patriotism, of rectitude and limitless devotion." He should continually be following their efforts and their successes, and "his life would be concentrated henceforth in an ardent wish to see, before he died, the noble flag of France flying aloft in a glorious triumph." Admiral Gervais's retirement is undoubtedly a great loss to the French Navy and his country; he is a consummate tactician, an indefatigable worker, an excellent trainer of men, and he is universally beloved and esteemed by officers and men. At 2 p.m. the flag officers and captains repaired on board the "Bouvet" to make their adieus, and at 2.30 p.m. the admiral struck his flag for the last time, and proceeded later to Paris.

On Sunday, 10th ult., the Squadron of the North left Toulon for Mers-el-Kébir on its return to Brest, the armoured cruiser "Dupuy-de-Lôme" remaining behind to repair an injury she had sustained to one of her cat-heads, but she left the following day with the destroyers "Fauconneau," "Durandal," and "Yatagan," to join Vice-Admiral de Courthille's flag off Oran. The squadron was to arrive at Brest about the beginning of the present month, when the Second Division under Rear-Admiral Péphau, consisting of the coast-defence battle-ships "Bouvines" (flag), "Valmy," and

"Jemmapes," was to proceed to Cherbourg to carry out some combined exercises with the *Défenses-Mobiles* and the submarines.

The first-class armoured cruiser "Montcalm" has been detached from the Squadron of the North and remains at Toulon, with a reduced complement, to undergo certain alterations preparatory to her being sent as flag-ship to China; of the other cruisers of the squadron the "Bruix," bearing the flag of Rear-Admiral Gourdon, and the "Surcouf," which were despatched to the West Indies to convey relief to the sufferers at Martinique, are now under orders to return to Brest. There will then remain in the West Indies the "Tage," "D'Assas," and "Suchet," which will be temporarily under the orders of Capitaine de Vaisseau Pivet, of the "Tage," pending the arrival of a successor to Rear-Admiral Servan, who has struck his flag in obedience to orders from the Minister of Marine. It is reported that Rear-Admiral Gourdon has been selected for the appointment of Chief of the General Staff at the Ministry of Marine. The second-class cruiser "Friant" is under orders to return to Cherbourg from China, and is to be placed in the Second Category of the Reserve at that port. The torpedo-avisos "Épervier" commissioned for her trials on the 1st inst., at Cherbourg, after having received new boilers, which, like her old ones, are of the cylindrical pattern.

New Ships.—Brest.—The first-class battle-ship "Suffren" has been swung for the adjustment of her compasses, and is shortly to commence her preliminary trials, and the first-class armoured cruiser "Marseillaise," completing at the same yard, is also to be ready to commence her trials during the autumn.

Lorient.—The first-class armoured cruiser "Amiral Gueydon" is so far advanced that she has made the first of her preliminary trials; only the central engine was used, and this making 77 revolutions worked satisfactorily; at full speed the engines should develop 19,500-I.H.P., giving a speed of 21 knots, steam being generated by 28 Niclausse water-tube boilers in four groups; a trial was also at the same time made of her two 7-6-inch guns, which are carried in turrets, one forward and one aft, and of two of her 6-4-inch Q.F. guns, of which eight are carried in armoured casemates; but defects exhibiting themselves in the mountings of one of the 7-6-inch guns, and in one of the 6-4-inch, the trial had to be discontinued. At the same port good progress is also being made with the armoured cruisers "Gloire" and "Condé," but owing to delays in connection with the delivery of the machinery of the former by the contractors, the latter, although launched nearly a year later, will be the first ready, all her side armour is in place, and the fixing of the armoured casemates for her 6-4-inch Q.F. guns is also well advanced.

Toulon.—The first-class protected cruiser "Châteaurenault" has at last been passed definitely for service. She is not a triumph in the way of rapidity of construction, as she was laid down more than six years ago, and launched rather more than four years ago. It is a year since her trials first commenced, and although in her last full-speed trial she attained the very high speed of 24 knots, it is considered extremely doubtful whether under the actual conditions of service, she will ever attain anything like that speed; her sister ship the "Guichen" having notably failed to do so. During her latest full-speed trial of two hours' duration, the mean speed of 24 knots was obtained with the engines making 130-7 revolutions, developing 24,300-I.H.P., the engines are reported to have worked well, and the excessive vibration, so noticeable on previous trials, seems to have been reduced to a minimum. According to present arrangements the ship is to form one of the new fleet to be constituted in Eastern waters.

In view of the pean raised by a section of writers in the French press over the performance of the comparatively speaking quite new first-class battle-ship "Gaulois," which managed to average from 14-5 to 15 knots in her recent trip across the Atlantic

and back, it is as well to note that she has been placed in the dockyard hands, and that the repairs to her machinery are, according to the *Moniteur de la Flotte*, likely to take several months.—*Le Temps* and *Le Yacht*.

M. Lockroy's Report (concluded)—Summing up.—"France," continues M. Lockroy, "is making considerable sacrifices to preserve her rank as a first-class naval Power, which is menaced on all sides, and the results obtained are not commensurate with her efforts. With the present Budget she ought to be in a better state of defence, better armed, and more ready for the struggle. Money disappears, through one does not know what leaks. And, with an administration above all suspicion, as upright and honourable as any in Europe, there yet exists a terrible squandering of our resources. The accessory expenses reach a figure ever higher, they increase day by day; on the other hand, the expenses necessary for due preparation for war are not sufficient for the urgent needs which our foreign and colonial policy has for the last twenty years imposed on France. Such a situation calls for organic reforms. This grave state of affairs is not the fault of the *personnel*, of whom it is impossible to speak too highly, but of our organisation, which through the lapse of time has become vicious and impotent.

"We are weighed down by our glorious past. Our Navy is old; it requires to be transformed, but it is always more difficult to transform than to create, as the material and moral obstacles are more numerous and less easy to overcome. It is necessary to break with old customs and traditions consecrated by time, and to upset a naval organisation full of heroic souvenirs. There is, however, no lack of goodwill, science, intelligence, or patriotism. The great fault of the Navy is a want of a proper appreciation of financial considerations, an unbounding belief that the resources of France are inexhaustible, and that questions of cost do not count—when, unfortunately, they are of great importance. The question is not so much one of new expenses as a more rational and profitable expenditure of the credits we have. Whatever funds are placed at the disposition of the Navy and of national defence should be devoted to a reasonable and methodical preparation for war, and all expenses which do not go towards war preparation should be suppressed.

"It is, however, above all, necessary that our organisation should be put on an efficient footing, and it is here that economies should be made. Take one or two examples, which will show how money is being spent with no profit to the Navy or country:—We are using old ships as schools for our seamen, where they do not find a single modern weapon—ships which when war breaks out must be paid off or else remain hidden away in port; we keep men in barracks on shore who could be keeping the ships in reserve in good order, while the ships are deteriorating for want of men to look after them. Then a large number of officers are kept in Paris when they should be at sea, while our squadrons and new ships are short of their proper complements; it is all money spent in the wrong direction. The number of supplementary officers called to Paris alone costs the country annually 600,000 francs.

"Money is again wasted when the construction of new ships of the same type is distributed among several yards. Several sets of plans have to be made, and the cost is proportionately increased. The ships are never quite the same as they ought to be; the price per ton varies in quite scandalous proportions; the loss is great from a fighting point of view, it is still larger from the economic; and the country's money is being spent without profit. Complaint is being continually made at the cost of new ships, the slowness with which they are built, and the want of homogeneity of our types. But there will be no change while the present *régime* continues, which considers it more necessary to satisfy particular interests than to work for the defences of

the country. It is only by centralising the construction of the same types of ships in the same dockyards—here small vessels, there large—that it will be possible to make ships as homogeneous as they ought to be, from the keel to the mast head, that we shall be able to accelerate the work, and so make sensible economies, and do away with the disquieting and grievous difference of cost for the same work which now exists between the different yards.

"If it has taken nearly six years to construct the 'Jeanne d'Arc'—and we could quote other cases as bad—it is the fault of neither the constructors nor the workmen: it is the result of old habits, which, formerly inconvenient, are now most hurtful. Formerly if a ship was a long time building, the mischief of the delay was not great; but to-day some years in completing a ship means that she is already obsolete by the time she is ready for commissioning. Another cause of delay in completing new ships is to be found in the amount of repairs, which have to be carried out on other ships, to cope with which a large number of men have to be withdrawn from ships building. This is particularly the case at Toulon.

"Toulon and Brest, at which last-named port the large cruisers of the Northern fleet ought to be concentrated, should be, *par excellence*, the ports for fitting out and for repair of ships. Lorient should be the yard for the construction of large ships, and here, side by side, vessels of the same type should be laid down. Rochefort should be the yard for the construction of small ships, destroyers, torpedo-boats, gun-boats, and submarines. Our naval ports are of great importance, if proper use is made of their resources, and account taken of the conditions imposed upon them by their strategic and geographical positions, for our naval ports are not only arsenals, but also bases of operation for the fleet, which may be classified as principal or secondary. The first includes the harbours, where ships, no matter what their draught may be, can enter at any hour by day or night, from where the offensive can easily be taken, yet which afford complete security; while the second are the harbours, which, either from their distance from the great sea routes, the nature of the coast and channels, or for other reasons, offer only a precarious or limited support to the fleet. This is the case with Lorient and Rochefort, for although the former is an excellent harbour, yet even cruisers cannot leave at all hours of the tide, while things are worse at Rochefort, for there, even when the Charente is deepened, light-draught vessels cannot enter at low water, they would have to take refuge in Trousses roadstead; but neither there nor at Aix are there any facilities for recoaling or taking in stores. It is out of the question then at present to consider either Lorient or Rochefort as primary bases. Cherbourg from its geographical position is indispensable as a strategical base, in spite of the fact that both its roadstead and dockyard are insecure from attack. It is, moreover, a convenient port for fitting out ships, although Brest and Toulon are, without question, both from the economic and naval point of view, best fitted for this duty, although the cost at Toulon is at present heavy. This is due to the very large number of small vessels which are fitted out there, more than at all the other yards put together, for the lower one descends in the scale of tonnage, so does the cost of fitting out increase, as the following table shows:—

Cost per ton of fitting out:—

Francs. Centimes.

50	51	for battle-ships of 12,000 tons.
79	58	for armoured cruisers of 4,750 tons.
89	45	for second-class cruisers of 3,935 tons.
111	51	for third-class cruisers of 2,240 tons.
348	17	for torpilleurs-de-haute-mer of 131 tons.

"The economic situation of Toulon would be much improved if the greater portion of our large units were concentrated there, and this is precisely the concentration which the Superior Council of the Navy has demanded in the interests of the national defence. Admiral Aube was doubly right when he formulated the same demand : '*The cruisers at Brest, the battle-ships at Toulon.*' He was right from both the naval and economic point of view."

M. Lockroy holds strongly to the view that the organisation of the dockyards requires reforming, and that this cannot be carried out until the *fleet in being*, and everything connected with it, is kept absolutely distinct from the ships under construction, as at present the accounts for both are kept hopelessly intermixed ; sums for the repairs of ships being often charged to the account of vessels under construction, while extra charges incurred for ships building are placed to repairs. This reform is as necessary in the interest of a proper preparation for war, as of economy. Ships which can no longer be used for fighting purposes should also be got rid of, as they only encumber the dockyards and useless expense is entailed in looking after them. None of the country's money should be wasted, every penny should contribute to an increase of force.

M. Lockroy next proceeds to criticise in detail the different chapters of the Budget, and in that on the *central administration* of the fleet he draws attention to the amount of extra work which is thrown on the shoulders of the Chief of the Naval General Staff, in particular to the number of committees appointed to enquire into all sorts of matters, over which he is called upon to preside ; as he is thus quite unable to devote himself to his proper duties, which is the *preparation for war*, on the careful study and carrying out of which defeat or victory may depend. The head of the General Staff of the Army, on the other hand, is never called upon for duty outside his department, and he has nothing whatever to distract his attention from his proper work. The number of commissions and committees of all sorts is far too large ; they accumulate and cause endless delays, besides keeping in Paris officers who would be far better employed at sea. The result is there is no responsibility for anything. In no other foreign Navy does such a complicated system exist, and the first thing to do is to simplify it, for simplicity is the first quality of a good administrative and fighting organisation, and among other things to attain this end there must be less centralisation and greater freedom of hand must be given to the different *Prefectures Maritimes*.

Coming to the expenses of the different dockyards, M. Lockroy points out that, if the number of useless officials is excessive at Paris, it is still more so at these yards, and that this is due entirely to the system of centralisation which exists, which does not leave the slightest power of initiative even in the smallest and most trivial matters to the commanding admirals, so that everything has to be referred to Paris, the result being a long and wearisome correspondence and a huge loss of precious time. In fact, instead of the officials existing for the Administration, the latter seems to exist for the officials, and any private concern carried on under such a system must infallibly collapse. The remedy again is decentralisation and more initiative for the *Prefectures Maritimes* prefects, who are the men with the requisite experience and know what is required. Their responsibilities should be in direct ratio to their seniority, their rank and their services, and if they are only given more independence and more real power, the greater portion of the present administrative paper-rubbish would vanish, the number of officials could be largely reduced, and a real saving would be effected.

Another reform which is necessary affects the ships in reserve and the question of mobilisation. Formerly in the days of sailing-ships, rapid mobilisation was not

a necessity, nor was it the custom to keep stores on the ships in the Reserve. Times, however, are changed and speed is now everything. Operations will commence on the day of the declaration of war. This has so far been recognised, that ships in the Reserve are now kept completed with stores; but that is not sufficient, the officers and men for every ship must also be told off in advance. At present not a single officer in the Reserve, on leave, or employed on duty ashore, knows what ship he will be sent to, whether battle-ship, cruiser, or torpedo-boat, nor what his duty will be. Under the existing system this will not be done until the last moment, when hostilities have actually broken out, and it will then be too late, and only disorder can ensue. Nothing can be, properly done, for which preparations have not been made beforehand. If, however, the officers on shore and the men are informed beforehand what ship they will have to join in an emergency, everything will be simplified; the authorities will be relieved of a heavy responsibility; everyone will take up his allotted duty without hesitation and the ships be ready for work without any undue delay. It may be said, as in fact has often been said, that any such system is impossible, owing to the work it will involve, and the constant transference of ships from the Reserve to commission and *vice versa*. To this it is only necessary to reply that such an organisation exists in Germany, where every officer, every seaman, every Reservist knows to what port he has to go on a declaration of war, what ship he has to join, and what his duty will be on board. Ought what is possible on the other side of the Vosges to be impossible on this? All that is necessary is that the units in Reserve should be organised into distinct groups, with a specially selected officer at the head. Every officer on disembarking from a commissioned ship will be immediately attached to one of the Reserve groups and to one of the ships in the group; whether he is on leave or retired does not matter—at the order to mobilise, he immediately joins as part complement.

M. Lockroy has naturally a good deal to say on the question of the supply of officers and training-schools for officers and men. He considers that the cost of the schools at present represents about ten per cent. of the expenditure of the preparation for war, and he thinks it permissible to ask if mechanics, artificers, stokers, etc., could not be better trained in private establishments and in the technical schools. In Germany almost all the men forming these classes are recruited ready trained from outside, and they must produce a certificate of their capacity from some German steamship company, or one to show that they have worked for more than a year in some engine manufactory or fitting shop. What is the objection to the adoption of this system, he asks? It seems to work well on the other side of the Vosges. Private workshops are probably as good as the State ones, and there is this advantage that they cost the State nothing.

But if there are some Service schools, he continues, which could be well replaced by a system of recruiting among the private manufacturing establishments of the country, there are others—and these are the larger number—which must be in the hands and charge of the Navy. But there are two sorts of these schools, between which it is necessary to draw a distinction. There are the theoretical and scientific schools, such as the Naval Cadet School, for instance, and these schools ought to be on shore, as is the case with the Cadet School in Germany; and then there are the special schools, such as the gunnery, torpedo, etc., which must be on board ship. The reason for this difference is evident. In a school like the Cadet School, where the instruction in the main is both theoretical and technical, it is necessary for the proper carrying out of the studies, laboratory work, etc., that there should be quiet and plenty of room, which can only be properly obtained on land; while in a purely practical and professional

school, on the contrary, there is nothing to be learnt or gained on *terra firma*; it is the ship which is the principal instructor, and on the ship the pupils must live.

M. Lockroy proceeds to point out that in the Navy there is a habit of acting in a manner quite contrary to what logic dictates; thus the school of naval science was established on board a ship, the "Borda," while the school for the instruction of seamen-torpedo-men was on shore. The "Borda" is so unfitted for her duties, that the cadets have to come on shore to carry out their scientific studies, while the practical instruction is done, not on board the "Borda," but her tenders. The "Borda" is, therefore, worse than useless, and it would be far better to build a college on some convenient site overlooking and adjacent to the harbour, similar to the cadet school at Kiel.

For some time past the diminution in the number of candidates for admittance to the Naval School has been a source of anxiety to the authorities, and it is now proposed to lower materially the standard of the examinations, a measure, says M. Lockroy, which may have grave consequences, for it will reduce the scientific equipment of the future officers, and, although making the entrance to a naval career easier, it will diminish the value of the entire corps of officers. Naval officers have always been a *corps d'élite*, and the development of science as well as the progress of foreign nations render it obligatory that it should remain so. Instead of lowering the intellectual standard, it would seem preferable to extend the limit of age by one or two years, and impose, on the contrary, a programme of entry similar to that for the Polytechnique. The objection may be made that the cadets would be too old. That is true; but the two years now spent on board ship as *aspirants de première classe* might be dispensed with, since the time even now is almost thrown away, as when embarked, unless they are energetic enough to study by themselves, they forget most of what they have learned at the Naval School. Between 1882 and 1885, when the cadets were promoted to *enseignes* without passing through the grade of *aspirants de première class*, they showed themselves quite competent to perform their duty. There is nothing more important for the future of the Navy than the organisation of the Naval Cadet School and the regulations for entry, as it is from that school come those who in time will command our naval forces. It is to be hoped that a sufficient number of candidates will be available, and it ought to be possible to establish a just proportion between the needs of the Navy and the number of officers, for unless this is done, promotion will be blocked and young officers will be unable to rise above the junior grades, after spending long years in which they will find their career closed—a state of things which will act disastrously upon the sources from which our supply of officers is drawn.

This question of officers is a source of difficulty in all modern Navies. The number of flag-officers, or even of the senior officers, is necessarily limited, while the number of junior officers is never sufficient. If no change is made, there is the danger arising from the want of junior officers; if their numbers are increased, the proper flow of promotion is checked; zealous officers are discouraged, and youngsters who would be willing otherwise to join the Navy are kept away. A solution of the problem is very difficult. In England, which is faced by the same problem, great efforts have been made to solve it by the employment of warrant officers, particularly in small vessels, while in time of war she has an admirable Reserve among the officers of the mercantile marine; their *status* has been raised, they are carefully trained, and their periods of service are so regulated and so well conceived, that without their proper rôle being materially interfered with they can mostly perform their duties quite efficiently on board a man-of-war. The problem could be solved quite as satisfactorily in France, were similar measures adopted. Many of the officers in the mercantile marine

are quite willing to serve, and to obtain rank in the Navy, but unfortunately all sorts of obstacles are put in their road, which render it almost impossible for them to achieve their desire; however reasonable these regulations may be in themselves, the result is, that between 1896 and 1899 only five long-voyage mercantile captains obtained the brevet of Reserve officers—a pitiable state of things, when one considers how many Reserve officers England obtained from her merchant navy during the same period.

M. Lockroy objects strongly to the old wooden cruiser "Duguay-Trouin" being used as a sea-going training-ship for cadets, and considers that a modern armoured cruiser should be used for the purpose, and among reasons for a change he points out that were a war to break out suddenly when the "Duguay-Trouin" was cruising far away from home, if she was not captured she would have to take shelter in some neutral port, and a whole generation of young officers would be either immobilised during the time hostilities lasted or would be prisoners of war. In either case the result would be a disaster.

Turning next to the question of the gunnery school, he draws attention to the fact that it is established on a perfectly obsolete ship, while the guns on board her for the instruction of the men are all of old pattern, none of which are now in use on board modern war-ships. This anomalous state of things represents a waste of time and of money, and is also a danger to the State, for in the last resort it is the proper scientific training of the men which can alone ensure victory. The same remarks apply to the maintenance of the old wooden frigate "Melpomène" as the sea-going training-ship for young seamen; her commanders have continually pointed out that the ship is too small to properly accommodate the numbers embarked, her sanitary condition is bad, and the men learn much that they will have to unlearn, when they are drafted to modern ships on service. The modern Fleet is increasing, but new ships have to be kept in the Reserve, where they deteriorate, as owing to Budgetary considerations they cannot be kept in commission, and under these circumstances it is simply criminal to maintain the training schools in obsolete wooden vessels. M. Lockroy is also dissatisfied with the new organisation of the torpedo school, which is in reality three different schools, each having a different object, but which are now to form one establishment, viz., the school for torpedo officers, that for torpedo mechanics, and that for torpedo seamen. These schools have really nothing in common, and it is against common sense that they should be limited and merged in one. The school for the officers is a theoretical and scientific one, and comprises the study and practical application of electricity in all its branches. Ships to-day being vast electrical machines, a ten months' course is none too long to give the students a sufficient knowledge of their subject. Young engineers in private yards are generally apprenticed for much longer. The torpedo-school is, it is true, on land, where it ought to be; but instead of being at Toulon within reach of libraries, the dockyard, and all the modern ships, it is buried away miles from anywhere in the midst of the pine forests, and the reason given for this choice of position is that the distractions of a town like Toulon would interfere with the studies of the officers. If the charms of Toulon are likely to prove so attractive to the officers of the torpedo school, what is to be said of the authorities for establishing the Superior School of the Navy in the heart of Paris? As regards the school for torpedo mechanics, it does not much matter whether it is located on board ship or on shore, so long as it remains at Toulon, where it now is, and where the dockyard affords peculiarly good opportunities for the instruction of the pupils. But it is absolutely indispensable, in his opinion, that the school for the torpedo seamen should be on board ship, as their instruction is neither theoretical nor scientific, but entirely practical. A special vessel

might be devoted to the purpose, or the men could be trained on board the ships of the Active Squadron, the important point being that the school should not be on land. He is strongly of opinion that the expense to be incurred in the re-organisation of the torpedo school, which will amount to 2,000,000 francs, is quite unjustifiable.

In his concluding criticisms, M. Lockroy comments on the grave discrepancies which exist between the supposed and real dates on which ships are completed, and he instances several ships that have not been completed for more than a year, sometimes even longer, after the originally prescribed dates. He also calls attention to the fact that several absolutely obsolete ships, which could by no possibility go into action, are still kept on the list, and money voted for their maintenance. He sums up as amongst the most urgent organic reforms necessary:—The separation of the fleet built from that under construction; a more logical use of the dockyards; the concentration of the same types of ships in the same yards; the sale of obsolete ships; the re-organisation of the schools; the re-organisation of the depôts, and the suppression of all unnecessary officials and duties.—*Rapport du Budget Général de l'Exercice, 1902.*

GERMANY.—The following are the principal appointments which have been made: Vice-Admiral—Blücher to be Chief of the General Staff of the Navy. Rear-Admirals—von Prittwitz und Gaffron for service with the Baltic command at Kiel; von Ahlefeld for service at the Ministry of Marine; Graf von Baudissin to be Second-in-Command of the Cruiser Squadron. Kapitän zur See—Borckenhausen temporarily entrusted with the duties of the Second-in-Command of the First Squadron; Holzhauer to "Blücher"; von Müller to "Wettin"; von Usedom to "Hohenzollern"; von Basse to "Kaiser Friedrich III."; von Heeringen to be Chief of the Staff of the First Squadron; Brüssatis to "Zähringen"; Wallmann to "Wittelsbach"; Poschmann to "Kaiser Karl der Grosse."

Increase in the Personnel.—The following figures are published showing the increase of the *personnel* of the Germany Navy:—In 1881 the total number of the *personnel* was 11,352; in 1886, 14,682; 1891, 17,083; 1896, 21,835; 1901, 31,171; and when the naval programme of 1900 has been carried out the number will be 60,000. The executive officers have increased from 453 in 1881 to 924 in 1901. The number of engineers has increased during the same period from 35 to 159; the surgeons from 63 to 164; the paymasters from 42 to 119; that of the warrant officers from 284 to 1,280; that of the petty officers from 1,459 to 5,558; and of the seamen from 8,043 to 19,975.

The Naval Manœuvres.—The Second Squadron formed for the manœuvres assembled at Kiel during the last week in July, Rear-Admiral Fritze hoisting his flag in command on board the third-class battle-ship "Baden" on 31st July; Rear-Admiral Galster hoisting his flag as second-in-command of the squadron on board the coast-defence battle-ship "Hildebrand" the same day. The two divisions of the squadron are constituted as follows:—

First Division.

Third-class battle-ships—"Baden" (flag-ship), "Württemberg."
Coast-defence battle-ship—"Beowulf."

Second Division.

Coast-defence battle-ships—"Hildebrand" (flag-ship), "Heimdall," "Hagen."

The second torpedo-boat flotilla was also commissioned and assembled at Kiel at the same time; it is formed of the C and D Divisions. The C Division comes from the Vith

Reserve Division (North Sea station), and consists of torpedo-boats Nos. 91, 92, 93, 94, and 95; D Division is formed from the 1st Reserve Division (Baltic station), and is the only one of the four divisions composed of old boats, with the old organisation of a division and six other boats; it is constituted with division boat D 3 and Nos. 68, 69, 70, 71, 72, and 73. The whole flotilla is under the command of Corvette-Captain Willbrandt, who has his senior officer's pennant flying in No. 94 of the C Division.

The First Squadron under the command of Admiral Prince Henry arrived in Danzig Bay on the 17th ult., being joined there on the following day by the Second Squadron. Admiral von Koester hoisted his flag in supreme command on board the 'Kaiser Wilhelm II.' at Kiel on the 17th, and proceeded the same day to Danzig; the small gunnery training-vessel "Grille" with torpedo-boats Nos. 7, 79, 80, acting as his despatch-vessels.

The Cruiser Division has been organised into two scouting divisions, as follows:—

First Group.

Second-class cruiser—"Victoria Luise."

Third-class cruisers—"Amazona," "Hela."

Second Group.

First-class armoured cruiser—"Prinz Heinrich."

Third-class cruisers—"Niobe," "Nympha."

The torpedo-boat squadron will consist of two flotillas: the first being made up of A and B Divisions; and the second, as already stated, of C and D Divisions. Special interest attaches to the performances of the torpedo flotillas this year, as A, B, and C Divisions are constituted of the newest type of sea-going torpedo-boats from the Schichau and Germania Yards.

The following vessels will also take part in the manœuvres between the under-mentioned dates in September:—The torpedo depôt-ship "Pelikan" from the 14th to the 18th; the despatch-vessel "Zieten" or the gun-boat "Bremse" from the 14th to the 18th; the second-class cruiser "Freya" from the 1st to the 18th; two fleet colliers and a hospital-ship from the 14th to the 18th.

On Friday, 22nd ult., the fleet put to sea and were exercised at tactical manœuvres during that day and Saturday, anchoring on Saturday evening off Neufahrwasser. On Monday, 25th, they again put to sea, exercising at tactics daily until Friday the 29th, when they anchored in the evening in Danzig Bay, the 30th and 31st being spent in coaling. On Monday, the 1st inst., the fleet weighed and proceeded to the North Sea through the Great Belt, practising *en route*, and in the North Sea during the ensuing five days tactical exercises, including scouting and the use of wireless telegraphy. On the evening of Friday, 5th, the fleet anchored off Heligoland, where they remained the 6th and 7th, proceeding on the 8th for another four days' tactical cruise in the North Sea. On the evening of Thursday, the 11th, the fleet is to anchor at Wilhelmshaven or in the Elbe, the next two days being employed in coaling. On the morning of Sunday, the 14th inst., the fleet will weigh, and during the next four days the great strategical manœuvres, at which the Kaiser will be present, are to be carried out, and on Thursday, 18th, the fleet will break up. Special attention is being given to the gunnery practice, and coaling is to be carried out under war conditions.

The combined naval and military operations will include an attempted landing on Borkum Island. Two battalions of infantry, brought up to a war footing, a division of field artillery two companies of garrison artillery, with detachments of cavalry and pioneers, will form the garrison, while detachments of marine infantry will be embarked on board the ships. The object of the operations is in connection with the

projected fortifications of Borkum for the protection of the mouth of the Ems, where it is proposed to land the end of a new ocean cable, and also as part of the system of fortification for the new large harbour at Emden.

Annual Prize-Firing.—The annual prize target practice of the First Squadron took place before the Kaiser on the 31st July off Kiel; full particulars are not available, but the firing seems to have been good. Three large targets were anchored and the fleet steamed past in line ahead, opening fire as the guns from the different ships bore at ranges from 10,000 to 5,700 yards. The flag-ship "Kaiser Friedrich III.," from the fore bridge of which the Kaiser watched the firing, headed the line of ships, but while all the battle-ships of the "Kaiser" class fired from their heavy 9·4-inch Q.F. guns, for some reason not given the three vessels of the "Brandenburg" class, instead of firing from their 11-inch guns, only fired their practice tubes instead. The "Kaiser Barbarossa" at the first shot from one of her 9·4-inch guns destroyed one of the targets, at what distance is not stated, and while passing got 16 rounds off from those guns, 15 of which were claimed as hits; from her 5·9-inch Q.F. guns she got off 72 rounds; from her 14- and 3-pounder Q.F. guns, 64 and 120 rounds respectively, and from her machine guns 1,000 rounds, a total of 1,272 rounds from all her guns in about 15 minutes. It is not stated at what speed she and the other ships of the squadron were steaming. Altogether between 8,000 and 9,000 rounds were fired from the squadron; the marking was done by the small cruisers specially stationed for the purpose. There seems to have been a considerably increased rate of fire from the 5·9-inch guns, eight rounds having been fired from the flag-ship and the "Kaiser Barbarossa" per minute, five to six rounds a minute having been the previous average.

New Ships and Dockyard Notes.—The new first-class armoured cruiser "Prinz Heinrich" has successfully completed her trials. On the 9th May she carried out a six hours' full-speed forced-draught trial, when the engines made 126·7 revolutions, developing 15,703-I.H.P., 703-H.P. over the contract, giving a mean speed of 20 knots. On the 5th June the ship had a twenty-four hours' coal-consumption trial with the engines developing 10,500-I.H.P., the result being as follows:—Revolutions, 111·3; I.H.P., 10,355; air pressure, 10 mm. (·39 inch); coal consumption, 0·868 kg. (1·913 lbs.) per hour; H.P. per hour; mean speed, 18·1 knots.

The result of the trial trips was awaited with great interest, since this vessel represents an entirely new type not represented in the German Navy, and as regards size and strength of armament and armour protection stands between the first-class armoured cruiser "Fürst Bismarck" and the second-class cruisers of the "Freya" class.

The construction of the "Prinz Heinrich" was commenced in December, 1898, at the Imperial Dockyard in Kiel, and has therefore taken a little over three years to complete. The vessel is 393·6 feet long and 64·3 feet beam, and, fully equipped, has a draught of 24 feet and a displacement of 8,930 tons. Like all other new large ships of the German Navy, she has three screws driven by the like number of separately mounted four-cylinder engines with triple expansion. The maximum speed is calculated at 20·5 knots. She has a coal stowage of 950 tons at normal draught. The armament consists of two 24-cm. (9½-inch), ten 15-cm. (6-inch) and ten 8·8-cm. (3½-inch) Q.F. guns, as well as ten 3·7-cm. (1½-inch) machine guns. The two heavy guns are mounted in two revolving turrets forward and aft and have a free arc of fire of 270° each. Of the ten guns of the secondary battery (6-inch calibre), six are placed in the casemate, three on each side, in such a manner that the two forward ones can also fire right ahead and the after ones right astern. The other four are mounted in single revolving turrets above the casemate. The two forward

ones of these can also fire right ahead, and the two after ones right astern. The lighter guns (8·8 and 3·7-cm.) are placed on the upper deck and on the superstructures in such positions that each single one has as large an arc of fire as possible. Of the 3·7-cm. (1½-inch) machine guns, some have been placed in the tops of the two fighting masts.

The torpedo armament consists of four tubes for 18-inch torpedoes, three of which (one bow and two broadside tubes) are submerged; only the stern tube, protected by the belt armour, lies above the water-line. In the ships of the "Freya" class the stern tube is lacking.

As regards armour protection, the "Prinz Heinrich" differs from the vessels of the "Freya" class in having a water-line armour belt, which extends over the whole length of the ship and is 4 inches thick on the water-line. The turrets of the heavy guns have an armour thickness of 6 inches, as against 4 inches in the case of the other aforementioned cruisers. Of equal thickness as with these, viz., 4 inches, is the armour protection of the forward conning tower and of the 15-cm. (6-inch) guns (casemate and turrets), but in the "Freya" class the casemate of the "Prinz Heinrich" is entirely lacking. The light guns only possess the protection, customary in the German Navy, of protective shields affixed to the carriage bodies proper. Naturally, all the ammunition shafts leading to the gun mounts are also armoured.

The slightly arched protective deck, which in the case of the beltless vessels, "Freya," etc., has a thickness of 4 inches, has with the "Prinz Heinrich" only a thickness of 2 inches, tapering to 1·5 inches.

The complement consists of 34 officers and 470 warrant officers and men.

The "*Prinz Friedrich Karl*."—The armoured cruiser which is to replace the old ship of that name, was successfully launched on June 21st from the yard of Blohm and Voss at Hamburg. She is somewhat similar to the "Prinz Heinrich," launched 22nd March, 1900, but differs in her armament and in some other particulars. The hull is of steel, without sheathing. She will have two military masts, each carrying one top; and two funnels. The bow is high and the superstructure extends from the stem to a point just forward of the after turret. The complement will be 528; or, as a flag-ship, 571. Her principal dimensions are:—Length, 393·7 feet; beam, 64·3 feet; mean draught, 24·3 feet; displacement, about 9,050 tons.

Her armament will consist of four 8·27-inch Krupp guns in pairs in turrets forward and aft, the forward turret being on the superstructure (or upper) deck, and the after one on the main deck. These turrets are reported to be trained by hydraulic power. Ten 5·9-inch guns—three each side in a long casemate on the gun deck, forward pair firing directly ahead, and after pair directly astern; and four in four turrets, two each side, over the casemates for the 5·9-inch guns. The upper works are thrown inboard to permit bow and stern fire from these turrets. Twelve 3·47-inch guns in the superstructure and on the upper deck and bridges. Four machine guns. Five submerged torpedo-tubes, one through the keel, twenty or thirty feet abaft the point of the ram, and two each side. One above-water torpedo-tube in the stern on the berth deck, protected by armour.

Protection is afforded by a complete belt, 7·5 feet wide, 3·9 inches thick amidships, and 3·2 inches at the ends. Above this, and extending up to the gun deck for a length of 165 feet amidships, the side is covered with 3·9 inch armour; and above this again is the casemate armour of the 5·9-inch guns. The protective deck, behind the belt and sloping down at the sides to meet the lower edge of the latter, is 2·8 inches thick on the slopes and 1·6 inches on the flat. The flat armour deck over the upper side armour,

outside the casemate, is 1·2 inches thick ; and the deck over the casemates is 1·4 inches. The turrets for the 8·27-inch guns are 5·9 inches thick and rest on barbette towers of the same thickness. The forward tower only extends down to the main deck and the after one to the gun deck ; thence loading tubes extend to the protective deck. The armour of the 5·9-inch turrets is 3·9 inches thick in front and 3·2 inches in rear, and of the 5·9-inch casemates, 3·9 inches. The forward conning tower is 5·9 inches thick, and the after one 0·47 inch of special steel. The ammunition tubes for the 8·27-inch guns are 3·9 to 3·2 inches thick ; for the 5·9-inch turrets, 3·2 inches.

She will have three 4-cylinder, triple-expansion engines, designed to develop 16,000-I.H.P. and give a speed of 21 knots. Fourteen Dürr water-tube boilers. Coal supply, at load draught, 950 tons ; total capacity, 1,500 tons.

The five new battle-ships of the "Wittelsbach" type are to be ready for their trials, according to the latest report from the Ministry of Marine, as follows :—The "Wittelsbach" and "Wettin" in October of this year, the "Zähringen" towards the end of the year ; the "Mecklenburg" next spring, and the "Schwaben" towards the end of 1903. It is hoped now that the new first-class battle-ship "J," the first of the 13,000-ton type will be launched from the Schichau Yard, at Stettin in December, and her sister ship "H" from the Germania Yard, Kiel, in February.

River Gun-boats.—Two river gun-boats, constructed at Hamburg, have completed their trials, during which they made 11½ knots. They will be sent to Africa for river work. The form of the new German river gun-boats for use in China has now been decided upon by the German Admiralty, and the first one ordered from the Schichau yards at Elbing. Her length is to be 188·64 feet ; beam, 31·44 feet ; draught, only 2 feet ; displacement, 170 tons. Her two engines will be supplied with steam by Thornycroft boilers, and will work two propellers, giving her a speed of 13 knots. Her radius of action at 10 knots will be 1,000 miles. She will be built throughout of Siemens-Martin steel, and have a protection of nickel steel of 8 mm. (nearly one-third of an inch) round her sides, and 12 mm. (nearly half an inch) for her conning tower. She will be armed with one 3·45-inch, one 1·96-inch, and two machine guns. She will have one signal mast, one funnel, and a search-light, and will carry three boats. Her complement will be 53 men.

We have already referred to the six new torpedo-boats building at the Germania Yard for the Navy, the first of which completed her trials successfully last May. Further details are now given. They are intended to maintain easily a speed of 26 knots with engines working at 5,000-H.P., and they will carry 100 tons of coal, which will give a radius of action of 2,000 miles at 12 knots. They differ from those already existing in the German Navy in being twin-screwed and in other details of construction. They are much higher out of the water forward, the signal mast is abaft both funnels, and the bridge is in front of them. Their length over all is 215 feet 10½ inches ; between perpendiculars, 207 feet 7½ inches ; beam, 22 feet ; draught, 8 feet 10 inches ; displacement, 350 tons ; complement, 49 men ; armament, three 1·96-inch guns, and three revolving torpedo-tubes, all on deck.—*Marine Rundschau, Ueberall, and Neue Preussische Kreuz-Zeitung.*

MILITARY NOTES.

PRINCIPAL APPOINTMENTS AND PROMOTIONS FOR AUGUST, 1902.

Brevet Colonel J. W. Hughes-Hallett, C.B., D.S.O., from Lieut.-Colonel, h.p., to be Colonel to command the 72nd (Seaforth Highlanders, Ross-shire Buffs, the Duke of Albany's) and 79th (The Queen's Own Cameron Highlanders) Regimental Districts. Brevet Colonel J. G. Glancy, from Lieut.-Colonel, h.p., to be Colonel to command the 100th Regimental District (The Prince of Wales's Leinster Regiment, Royal Canadians). Major-General Sir G. de C. Morton, K.C.I.E., C.B., from Major-General on the Staff Commanding the Dublin District, to be a Major-General on the Staff to command the 7th Division, IIIrd Army Corps. Colonel A. Masters, I.S.C., to be an A.Q.M.G. of a command, and to have the substantive rank of Colonel in the Army. Colonel H. A. Abbott, C.B., I.S.C., to be a Colonel on the Staff with the substantive rank of Colonel in the Army. Lieut.-Colonel and Brevet Colonel R. G. W. Hepburne from Lieut.-Colonel, h.p., to be a Colonel on the Staff to command the Royal Artillery, Madras Command, with the substantive rank of Colonel in the Army, and to have the temporary rank of Brigadier-General whilst so employed. Lieut.-Colonel G. H. Ferrier to be Chief Paymaster, with the substantive rank of Colonel in the Army. Lieut.-Colonel R. R. B. Terman, to be Chief Paymaster, with the substantive rank of Colonel in the Army. Lieut.-Colonel H. F. Lyons-Montgomery, I.S.C., to be Colonel. Lieut.-Colonel M. J. Godfrey, A.S.C., to be Colonel. Lieut.-Colonel F. W. N. Wogan-Browne, h.p., to be Colonel. Lieut.-General Sir F. W. E. F. Forestier-Walker, G.C.M.G., K.C.B., to be General. Lieut.-Colonel and Brevet Colonel W. H. White, R.E., is granted the substantive rank of Colonel in the Army. Lieut.-Colonel and Brevet Colonel H. W. Duperier, R.E., is granted the substantive rank of Colonel in the Army. Lieut.-Colonel G. A. Mills, C.B., the Royal Dublin Fusiliers, to be Colonel. Honorary Colonel His Highness Sir Pertab Singh, Maharaja of Idar, G.C.S.I., K.C.B., A.D.C., is granted the honorary rank of Major-General. Lieut.-Colonel H. Mansfield, I.S.C., Deputy Director for Transport in India, is granted the substantive rank of Colonel in the Army. Brevet Colonel G. D. Fanshawe, from Lieut.-Colonel, h.p., R.A., to be a Colonel on the Staff for Royal Artillery. The Rev. J. Robertson, D.D., D.S.O., Chaplain to the Forces Second Class, to be Chaplain to the Forces First Class, while Senior Presbyterian Chaplain to the Forces in South Africa. Lieut.-Colonel R. C. Hellard, R.E., to be Colonel. The undermentioned officers are appointed Colonels on the Staff, temporarily to command Second-Class Districts in India, with the temporary rank of Brigadier-General, viz., Colonel F. Abbott, I.S.C., Colonel A. G. Creagh, C.B., R.A., Colonel C. R. Macgregor, C.B., D.S.O., Colonel R. A. Gilchrist, Lieut.-Colonel E. de la P. Beresford, Military Attaché, St. Petersburg, to be Colonel. Lieut.-Colonel E. M. S. Crabbe, C.B., h.p., to be Colonel. Lieut.-Colonel A. H. Hewat, R.H.A., to be Colonel. Lieut.-Colonel H. G. Weir, R.G.A., to be Colonel. Lieut.-Colonel F. W. Bloomfield, from the Cheshire Regiment, to be an A.Q.M.G. of a command in India, and to have the substantive rank of Colonel in the Army. Lieut.-Colonel A. G. Churchill, Military Attaché, Tokio, to be Colonel. Lieut.-Colonel J. C. L. Campbell,

R.E., to be Colonel. Lieut.-Colonel and Brevet Colonel G. D. Fanshawe is granted the substantive rank of Colonel in the Army. Hon. Lieut.-Colonel Muhammad Aslam Khan, Sirdar Bahadar, C.I.E., to be Hon. A.D.C. to the King, and to have the honorary rank of Colonel in the Army. The following temporary appointments have been made to the Staff in India in place of officers proceeded on field service to South Africa and China: To command First-Class Districts—Major-General J. H. Wodehouse, C.B., C.M.G., commanding a Second-Class District; Brigadier-General Sir R. C. Hart, K.C.B., V.C., commanding a Second-Class District; Colonel H. A. Abbott, I.S.C.; Major-General D. J. S. McLeod, C.B., D.S.O., Madras General List; Brigadier-General Sir E. R. Elles, K.C.B., commanding a Second-Class District. Colonel G. Henry, a D.A.G., to be Q.M.G. in India.

INDIA.—*The Military Manœuvres at Delhi.*—The troops to be assembled for the Delhi Manœuvres will be divided into two main forces, entitled the Northern Army and the Southern Army.

The composition of the two armies will be as follows:—

NORTHERN ARMY.

First Cavalry Division.—First Cavalry Brigade: D. Battery, R.H.A., and Dragoon Guards, 11th Bengal Lancers, composite regiment of Central India Horse, Section C. No. 3, British Field Hospital, Section A. No. 38, Native Field Hospital.

Second Cavalry Brigade: 1 Battery R.H.A., 9th Lancers, 8th Bengal Lancers, 19th Bengal Lancers, Section B., No. 3, British Field Hospital, Section A, No. 56, Native Field Hospital.

Third Cavalry Brigade: Two squadrons each 3rd Bengal Cavalry, Guides and 5th Punjab Cavalry, Patiala Imperial Service Lancers, Sections A. and B., No. 31, Native Field Hospital.

First Infantry Division.—First Infantry Brigade: 1st South Wales Borderers, Welsh, 1-3rd Gurkhas, 23rd Bombay Rifles, Section D., No. 3, and Section A., No. , British Field Hospitals, Section C., No. 46, and Section B., No. 56, Native Field Hospitals.

Second Infantry Brigade: 2nd Gordons, 2nd Argyll and Sutherland Highlanders, 1st Punjab Infantry, 27th Baluchs, Section A. No. 3 and Section A. No. 20 British Field Hospitals, Section C., No. 31, and Section A., No. 45 Native Field Hospitals.

Divisional Troops: 39th Brigade Division R.F.A., consisting of 6th, 51st, and 54th Batteries: No. 6 Mountain Battery R.G.A., Derajat Mountain Battery; 1 Squadron 1st Punjab Cavalry, half-battalion Mounted Infantry (two companies British), 15th Sikhs, No. 1 Company Bengal Sappers; Section A., No. 8, and Section A., No. 15 British Field Hospitals, Section A., No. 34, and Section B., No. 29, Native Field Hospitals.

Second Infantry Division.—Third Infantry Brigade: 1st Hampshires, 2nd Border Regiment, 20th Punjab Infantry, 38th Dogras; Section A., No. 9, and Section A., No. 11 British Field Hospitals, Sections B. and C., No. 38, Native Field Hospital.

Fourth Infantry Brigade: 3rd Rifle Brigade, 2nd King's Royal Rifles, 1-2nd Gurkhas, 1-39th Garhwals; Section A., No. 1, and Section D., No. 2, British Field Hospital, Section C., No. 32, and Section A., No. 8, Native Field Hospital.

Fifth Infantry Brigade: 2nd K. O. S. B.'s, 32nd Punjab Pioneers, Jhind, Nabha, Kapurthala and Patiala Imperial Service Infantry; Section C., No. 20, British Field Hospital, Section D., No. 31, and Section D., No. 38 Native Field Hospital.

Divisional Troops : 1st Brigade Division, Royal Field Artillery, consisting 13th, 31th, and 72nd Batteries, No. 1 Mountain Battery, R.G.A., Quetta Mountain Battery, Kashmir Imperial Service Mountain Battery ; one Squadron 2nd Punjab Cavalry ; one squadron, 10th Bengal Lancers ; 28th Madras Infantry, No. 2 Company Madras Sappers ; Section A., No. 14, and Section C, No. 15 British Field Hospitals, Section A., No. 29, and Section D., No. 52, Native Field Hospitals.

Corps Troops : One Battalion Mounted Infantry (2 companies British, 2 companies Native), Bikanir Camel Corps ; Nos. 42, 51, 71, and 104 Companies, R.G.A. ; one double company each of the 4th Sikhs, 2nd Punjab Infantry, 4th Punjab Infantry, and Guides Infantry, half Pontoon Section, Printing Section, and Photo-Litho Section, Bengal Sappers, 2 special mounted signalling units, each from 5th Dragoon Guards and 4th Hussars, and one from 2nd Madras Lancers ; Section D., No. 1, British Field Hospital, Section C., No. 34, and Section A., No. 42, Native Field Hospitals.

Line of communication details, Section A., No. 2, Field Veterinary Hospital, general medical hospitals at Umballa as mentioned below.

SOUTHERN ARMY.

Second Cavalry Division.—Fourth Cavalry Brigade : H Battery, R. H. A., 15th Hussars, 9th Bengal Lancers, 4th Bombay Lancers ; Section B., No. 1. C. British Field Hospital, Section A., No. 47, Native Field Hospital.

Fifth Cavalry Brigade : 2nd Lancers, Hyderabad Contingent, Alwar, Gwalior and Bhopal Imperial Service Lancers ; Section B., No. 41, and Section A., No. 46, Native Field Hospitals.

Third Infantry Division.—Sixth Infantry Brigade : 2nd Connaught Rangers, 1st Royal Irish Rifles, 6th Jats, 13th Rajputs ; Section B., No. 11, and Sections B., No. 14, British Field Hospitals, Section D., No. 32, and Section B., No. 48, Native Field Hospitals.

Seventh Infantry Brigade : 2nd South Lancashires, 1st North Staffords, 4th Infantry, Hyderabad Contingent, 1st Moplahs ; Section A., No. 19, and Section C., No. 22, British Field Hospital, Section A., No. 41, and Section No. 61, Native Field Hospital.

Divisional Troops : 38th Brigade Division, Royal Field Artillery, consisting of 24th, 34th, and 82nd Batteries ; one squadron, 14th Bengal Lancers, 4th Rajputs, 4th Madras Pioneers ; Nos. 3 and 4 Companies Bengal Sappers, Section C, No. 1, British Field Hospital ; Sections A and B, No. 59, Native Field Hospitals.

Corps Troops : One Battalion Mounted Infantry (two companies British, two companies Native) ; Nos. 72 and 91 Companies R. G. A. ; Alwar and Bhartpur Imperial Service Infantry ; No. 4 Company Bombay Sappers, half Pontoon Section and Balloon Section, Bengal Sappers Printing Section, Madras Sappers ; two Special Mounted Signalling Units from 6th Dragoon Guards, and one from 3rd Madras Lancers ; Section A., No. 10, British Field Hospital, Section A., No. 35, Native Field Hospital.

Line of communication details : Section B., No. 2, Field Veterinary Hospital, General Medical Hospital at Delhi, as mentioned below.

The general idea for the manœuvres is that a force (Northern Army) is moving from Umballa against Delhi, which is known to be held by a smaller force (Southern Army). The manœuvre area from the commencement of the manœuvres to 12th December will be bounded on the east by the Jumna and on the west by the line running through the village of Naisang (15 miles west of Karnal) and the village of Anwali (16 miles west of Sonapat). It will not be permissible during the manœuvres to move troops outside these boundaries. The Northern Army will be concentrated at

Umballa by 24th November and the Southern Army at Delhi by the same date. Followers have been calculated on the field service scale. Baggage and kits for the Coronation Assemblage may be taken on the relief scale; but during the manoeuvres will be limited to the field service scale. Infantry battalions, to whom Maxim and machine guns and mules have been issued, will take them together with blank ammunition 2,000 rounds per gun. A strict medical examination of troops and followers, and strict veterinary examination of horses will be made before they leave their stations. General medical hospitals will be established in the first instance as follows: 200 British and 200 Native beds at Umballa; 200 British and 100 Native beds at Delhi. For the manoeuvres a newspaper desiring it may be represented by one correspondent with each army. Officers belonging to the forces will not be permitted to act as newspaper correspondents.

BELGIUM.—*Army Budget for 1902.*—The Ordinary and Extraordinary Budgets for the Belgian Army for 1902 amount respectively to 49,205,370 and to 6,000,000 francs. The second only shows a difference of at least 133,945 francs on that of the previous year. The credits are distributed as follows:—

<i>a. Ordinary Budget.</i>					Francs.
1.	Central administration	...	...	...	530,600
2.	Pay and accessories	...	...	...	21,569,380
3.	Medical service	...	...	...	910,335
4.	Military schools	...	...	...	214,975
5.	Artillery service	...	...	...	1,889,944
6.	Engineer service	...	...	...	1,585,000
7.	Commissariat	...	...	...	18,602,332
8.	Various expenditure	...	...	...	427,754
9.	Pensions, etc.	...	...	...	407,100
10.	Unexpected expenditure	...	...	...	67,950
Total					49,205,370

<i>b. Extraordinary Budget</i>	6,000,000
--------------------------------	-----	-----	-----	-----	-----------

The chief credits of the Extraordinary Budget are with regard to armament, viz., 1,335,300 francs (685,300 for field artillery matériel, and 650,000 francs for the formation of a reserve of rifles for the infantry), and with regard to barrack accommodation, viz., 3,728,075 francs.—*Revue Militaire.*

CHINA.—*Re-organisation of the Army.*—Yuan Shi Kai, the Commander-in-Chief of the Chinese troops in Pe-chi-li, has submitted the following modifications for the organisation of the newly constituted Army for the approval of the Emperor.

1. Soldiers will be raised in a district in order to defend its boundaries and protect the inhabitants. The task allotted to them is a great and important one. In raising recruits for the Army, the organisation of which I have just been commissioned by the Government to undertake, I consider to be a matter both of necessity and of prudence, to follow those methods which generally obtain in foreign countries. Thus all prefects and district superintendents in the Chih-li province will be ordered to ascertain how many townships their districts contain, and how many inhabitants each place contains, and will further cause the headman of each township to detail through their magistrates a certain number of the inhabitants for enlistment. All persons so detailed must

be of respectable character and must have relations. Should the headmen detail lazy men or discharged soldiers, they will be severely punished.

2. All persons detailed for enlistment must remain in their homes until the authorised district magistrates have been sent round to approve and enlist them.

3. Enlistments under the present conditions must be preceded by regular public notices on the part of the district magistrates. In all these proclamations the military provisions must be laid down that the people can clearly understand their meaning. The date on which the headmen have to give in the names of the men they wish to enlist to their district magistrates must similarly be made known beforehand. The district magistrates must make it an impossibility for their assistants or for the headmen to be able, under any pretext, to accept a present, without being certain of severe punishment.

4. As soon as the number of recruits, enlisted in accordance with the above rules, amounts to a *Shao* (half battalion), each recruit will receive 100 *cash* a day for maintenance; they will be quartered in a selected place until they have reached the strength of a full battalion, when the regular military service will commence. They will then receive 150 *cash* a day for maintenance.

5. As soon as the battalion is linked to another one, each non-commissioned officer will receive a monthly salary of 5 *taels*, and every private soldier one of 4.50 *taels*, in addition to the maintenance money mentioned above. The general will issue a certificate to the family, or to the next of kin, of each soldier, which will serve the following purposes:—Beginning with the fourth month's service of every soldier, the general will deduct 1.50 *taels* a month from the pay of a non-commissioned officer, and 1 *tael* a month from that of the private soldier. This deducted money will be deposited with the chief paymaster, and sent, half yearly, through an authorised agent, to the magistrate of the district where the soldier was born, who will pay it out in the presence of the authorised agents of the family or next of kin of the soldier, on the production of the aforesaid certificate, on a day jointly agreed upon by the agents and the magistrate. In every case the amount must be entered on the certificate against the date of payment in the presence of the possessor. In the event of such certificate being lost, the local authorities must be informed of the fact one or two days before the date of payment, when a fresh certificate will be issued, with a notification of the invalidity of the first certificate. In the event of the local authorities or the authorised agents committing any breach of faith in the issue of the moneys, the family or the next of kin of the soldier, at whose expense the embezzlement has been made, will notify the fact to him by letter, which the latter can show to his battalion commander. The guilty person or persons will be severely punished.

6. It will be expected of every soldier who has once been promoted that he devotes his whole time and attention to the carrying out of his military duties. This, however, is only possible to him while he remains entirely free from family cares. The local authorities should, therefore, protect soldiers' families or next of kin against defamation by the bad characters of the town by obtaining for them the same legal privileges usually enjoyed by a scholar of the first rank, so that their petitions may be presented by an advocate at the Court of Justice on the day for the pleadings. This privilege is not to be extended to discharged soldiers, who will, in every way, be treated as ordinary individuals.

7. Whoever has held a military rank for 3 months, and has retained it, will be freed from the taxes which the inhabitants of Chih-li usually render the Government. If, on the other hand, it should be proved that he uses his position as a soldier to assist another person in resisting the law, he will be severely punished.

8. The commander of every battalion must furnish a return to the colonel commanding, at the end of every month, showing how many soldiers have been given leave of absence during the month, how many have been absent without leave, and how many have been discharged. The general must notify the names of discharged soldiers to the district magistrate, from time to time, so that the latter may be able to prevent them from enlisting a second time.

9. When a soldier deserts from his battalion and returns to his native town the prefect of the district must be informed of the fact so that he can quickly seize him when with his relations. Should the headmen protect him or refuse to surrender him, they will be severely punished. Should it not be possible to notify the dwelling-place of the deserter within a month, the local mandarin will take proceedings against his relations.

10. Should the local mandarin show slackness in his attempt to arrest the deserter he will be severely punished.

11. Should a soldier be promoted to officer's rank, the local mandarin must be informed of the fact for registration purposes.

12. The following qualifications will be demanded of a recruit :—

- a. He must not be under 20 or over 25 years of age.
- b. He must be sufficiently strong to lift a weight of 100 lbs. with both hands to a horizontal position as high as his chest.
- c. He must be at least 4 feet 8 inches in height.
- d. He must be able to cover a distance of 20 *li* in one hour.
- e. He must be of respectable character and have never undergone imprisonment.
- f. He must have no bodily defects.—*Internationale Revue über die gesamten Armeen und Flotten.*

FRANCE.—*The French Manœuvres.*—The *France Militaire* publishes some interesting particulars of the ground where the French manœuvres will be carried out, from 3rd to 9th September. Between Toulouse and Montauban the River Garonne is joined by two tributaries, the Hers and the Giron; and it is in the triangle formed by these streams that the operations will take place. It is the country through which Soult moved after the battle of Toulouse in 1814 on his way to get in touch with Suchet, who was operating in the Pyrénées Orientales; and it is probable that one phase of Soult's movement will be reproduced under modern conditions in the forthcoming manœuvres. The valley of the Hers is from 1½ to 1¼ miles wide, to which extent the land is flat, but the surrounding country is very much broken and intersected by watercourses, making marching difficult, but offering splendid cover. It is the land of the vine and of maize, and as neither vintage nor harvest will have been made, the troops will be compelled to respect these crops; and they will, no doubt, be largely used as cover. The roads are good, but in view of the manœuvres a large quantity of metalling has been thrown down on them, making travelling bad for motor-cars and bicycles. Although there are many watercourses they are often dry, and special arrangements will be made for watering the troops by supplies brought in tanks by rail. The two army corps to be engaged are the 16th and 17th, and the 16th will probably assemble between Castelnaudary and Carcassonne.

The same journal states that on 30th and 31st August and 1st September the XVIth Army Corps will engage in manœuvres of division against division, of which the following is the scheme :—An Army is in formation in the neighbourhood of Toulouse. It has detached a division (the 32nd Division and 17th Dragoons) to move towards Castelnaudary in order to cover itself on the east. An opposing force, consisting of

the 61st Brigade, a Colonial brigade, a company of engineers, three batteries, one squadron of the 11th Dragoons, and three squadrons of chasseurs, under the orders of the general commanding the 31st Division, has to advance in the direction Castelnau-dary-Toulouse, in order to hinder the formation of the army of the enemy. Operations will begin on the first day. On the second day the commander of the 32nd Division, finding himself not strong enough to oppose the concentration of the opposing forces, will make a night march in order to take up a position either in rear or on the north flank. The general of the 31st Division will take the offensive. On the third day the relative strength of the opposing forces will have been changed by the reinforcement of the 32nd Division during the previous night by a brigade from Toulouse, and by the 31st Division despatching a brigade towards Fanjeaux in order to watch the roads leading from the valley of the Ariège. The commander of the 32nd Division ascertaining his superiority, will advance against the enemy and endeavour to force him back on Carcassonne. The commander of the 31st Division will take measures to prevent this.—*Times*.

GERMANY.—*Armed Strength*.—The *Bayerische Militär-Zeitung* publishes the following concerning the war strength of the German Army and Navy:—During the 25 years from 1876 to 1901 the number of men who passed through the hands of the drill sergeant was 5,183,103, including about 200,000 one-year volunteers. Allowing 20 per cent. for losses of various kinds, this would still leave in round numbers 4,000,000 trained warriors available in case of war. In addition to these there are 7,600,000 men, who have passed into the First Reserve or into the Landsturm with little or no training, and these should yield at least another 3,800,000 able-bodied men who in a few weeks should be ready for war. By a similar process of reckoning there should be 112,000 trained seamen, including some 12,500 one-year volunteers; and to these may be added a net 33,000 men accustomed to the sea, but otherwise untrained for naval purposes. The total fighting strength of the German nation, therefore, may be placed at a round 8,000,000 men. That this number is not far from the mark is more or less confirmed by the fact that the recent census gave 10,713,483 landsmen between the ages of 17 and 45, 36,638 seafaring men, and about 500,000 liable to service resident abroad, or a total of over 11,000,000 men all liable to be called up. The report on the fitness of the men of the German recruit contingent of 1900 was as follows:—55·6 per cent. were quite fit; 16·2 per cent. would become fit later; 20·2 per cent. were less fit; 7·8 per cent. were unfit; and 0·2 were unworthy. Apart from the one-year volunteers, who are really not volunteers in the strict sense of the word, 17·3 per cent. actually volunteered for service. The percentage of totally uneducated men was only 0·07. The number of men in the ranks of the German Army on 1st October this year will be 495,500; of officers and officials, 29,000; of non-commissioned officers, 81,000; and of one-year volunteers, 800. They will form 625 battalions of infantry; 482 squadrons including 17 squadrons of mounted chasseurs; 583 field batteries, 39 battalions of foot artillery consisting of 163 companies, 13 machine-gun sections, 29 battalions of pioneers, 11 battalions of troops of communications, and 23 battalions of army service.—*Times*.

ITALY.—*The Territorial Militia*.—The *Popolo Romano* has quite recently published a series of precise and most interesting articles on the present state of the Territorial Militia in Italy. According to that journal, the Territorial Militia, on the

30th June, 1901 (up to which date the last official statistics were made up), had a nominal effective of 2,275,631 men, thus distributed :—

Belonging to the 1st Category	...	...	...	...	479,875
" 2nd "	...	...	...	...	131,720
" 3rd "	...	...	...	...	1,664,036

An examination of these numbers proves that out of this enormous mass of men 73 per cent. were men who by law are exempt from all military service, and who have, consequently, either no military instruction whatever, or at best a very rudimentary one. As a matter of fact, as is well known, the service that the men of the 3rd Category are liable to in peace-time amounts to very little. It will suffice as an illustration to remark that the number of men of the 3rd Category called out for a few days' instruction was 192,376 out of a total of 1,664,036, that is to say, about one in every nine. As regards military instruction, the men of the Territorial Militia are thus distributed :—

Having served from 1 to 3 years	...	...	...	...	467,941
" " 1 to 5 months	...	...	...	...	117,910
" " 1 to 5 weeks	...	...	...	...	192,376
Pay Clerks, Telegraphists, etc.	...	...	...	...	34,183
Total	...	...	...	...	812,410
Without any instruction whatever	...	...	...	...	1,463,221
Grand total	...	...	...	...	2,275,631

The greater part of the men who had received instruction were already of a certain age (from 32 to 39 years), which helps to lessen the military value of the Territorial Militia. The young men, as a rule, have received no military instruction, and form a negligible quantity as regards national defence. The trained men are old and few in number, and have only a relative value for the defence of the country.

The number of sergeants is insufficient for the most modest mobilisation requirements, although only the organisation of 324 infantry battalions and some units of the other arms has been provided for. For the formation of 324 battalions about 12,000 sergeants would be required. The official report, published by the War Department, states that there are only 6,939 on the lists. With the inevitable wastage consequent on mobilisation it may be calculated that, at least, half the number of sergeants necessary to make up the cadres of the formations would be wanting.

On the other hand, the 22 Alpine battalions of the Territorial Militia require, at least, 772 sergeants. The present effective is 367. It must be stated that the cadre of corporals is sufficiently over its strength to make good this deficiency; but this is surely a makeshift expedient, for the corporals have neither the authority, the length of service, nor the experience of sergeants, who have all, at least, five years' service.

According to the law of 1897 the Territorial Militia which, in the event of war, is charged with the maintenance of internal order, and with the defence of the territory, forms at the moment of mobilisation :—

- 324 infantry battalions.
- 22 Alpine battalions.
- 100 companies of coast and fortress artillery.
- 30 engineer companies.

For all these formations the Territorial Militia was about 585,000 men of from 1 month to 3 years' service, and 4,014 officers of all ranks and of all branches of the Service. To officer 324 infantry battalions, 324 field officers, 1,296 captains, and 5,508

subaltern officers would be required. On the 30th June, 1901, the number of infantry officers belonging to the cadres of the Territorial Militia was about 2,605; there was, therefore, a deficit of more than 4,000. The deficiencies were as follows :—

229 field officers.

862 captains.

3,432 subalterns.

The number of officers then, as is shown, is insufficient. In order to make up the deficit recourse would have to be had to the Reserve of officers, who are all very old, and a great number of whom would be incapable of serving again, even in the Territorial Militia.

The Italian Army completely mobilised should consist, according to the law of 1897, in infantry of :—

147 line regiments (Permanent Army and Mobile Militia).

56 bersaglieri battalions " " "

113 Alpine companies " " "

324 infantry line battalions (Territorial Militia).

22 Alpine battalions " "

For all these formations there should be at least 19,858 officers of all ranks. On the other hand, the depôts require 1,000 officers and the staff at least 350, which would indicate that certainly 21,000 officers of all ranks are necessary for efficiency.

But on 30th June, 1901, the total number of officers available for the infantry was 16,463, not including Reserve officers. It may, therefore, be concluded that at least 5,000 officers are wanting, allowing for wastage on mobilisation. But officers of the Reserve only number 2,961, and even allowing they all have the necessary health for a campaign, which is far from being the case, there must always be a large deficit which it is impossible to fill.

The deficits which have been mentioned with regard to the infantry, exist to an equal extent in the other branches of the Service, and unless a new law on recruiting is formulated on bases ensuring the recruiting of a larger number of officers, the position of the Italian Army may become a very delicate one, and must occasion great uneasiness.

—*Précis from La France Militaire.*

MEXICO.—*Military Conditions.*—An article on the "Department of War and Marine of Mexico" appears in *Modern Mexico* for July. This department was first installed on 11th April, 1822, under the Imperial Council established by Iturbide. Since then, with every change of Government, there has been a change of Secretary of War and Marine, about eighty in all holding office on different occasions. The Secretary of State for War and Marine is always an officer of high rank—usually a general—and is necessarily a political partisan of the chief Executive of the Government.

The Department of War and Marine, re-organised under the law of 13th May, 1891, is a department of State, and has charge of all matters relative to the Army and Navy, the national guard, the merchant marine, military, legislation, the administration of military justice, privateer commissions, the military college, nautical schools, military hospitals, forts, fortifications, barracks, arms and ammunition, factories, arsenals, military warehouses, and depôts.

The Mexican Army is divided into three sections—the Active Army, the Reserve, and the Second Reserve. In 1897 the permanent Army of the Republic consisted of 8 generals of divisions, 54 generals of brigades, 955 officers of the rank of major, lieutenant,

colonel, and colonel, of whom 450 were *en deposito*—that is, they were not an active service—2,379 officers, from captain to ensign, of whom 527 were *en deposito*; 26,141 rank and file, of whom 16,423 were infantry; 6,554 cavalry, 1,776 artillery, and the balance in the various special services of the Army. In addition there were 6,817 horses, and 2,550 mules for hauling and packing.

The regulation arms are the Spanish Mauser, Colt's mitrailleuse, the Bangé, the Krupp, and the Mondragon cannons, the latter being the invention of Colonel Manuel Mondragon, of the Mexican Artillery. In the organisation of the Army the French system, with slight modifications, is followed.

The War Department has charge of the historic Military College of Chapultepec, where about 300 students receive a thorough military education. The college was founded in 1824, and since 1843 has been at Chapultepec, where in 1847 the young cadets made a heroic defence to the attack of the American Army. The students are furnished their uniforms, living, books, instruction, arms and equipment generally, by the nation. Candidates are admitted from 15 to 18 years of age, on passing an examination in arithmetic, algebra, Spanish, and the elements of French. The expense of maintenance of the college averages \$178,000 a year. The present director is General of Engineers Juan Villegas, a thoroughly scientific and competent officer and soldier.

On 31st October, 1900, the re-organisation of the Mexican Army was decreed by the Mexican Congress, and among the measures President Diaz was authorised to take to carry out the decree was the formation of a Second Reserve, to consist of volunteers to be organised into a corps of officers, to form the nucleus of a volunteer army in the event of an emergency. The corps is to consist of young men of good education, who shall receive a course of military instruction and discipline. The First Reserve, or *Primera Reserva*, has long existed, and is formed of retired officers of the Regular Army, of the Federal and State, rural and city police, the maritime and frontier customs guards, and all other armed bodies receiving pay from the State.

The *Segunda Reserva*, as the new volunteer corps is called, will hold rank from sub-lieutenant to major, and as vacancies occur will be promoted according to a regular scale. There will also be sergeants and corporals, so that as men are collected hurriedly on an emergency they will at once become organised as regular and not as raw troops, as they find themselves well officered and the whole intermixed with the Regular Army. The movement has been well received throughout the Republic, appeals to the popular sentiment of patriotism, and a number of young men from all professions have hastened to join the Reserve. These Reserve officers when in uniform receive all the honours and distinctions accorded to officers of the Regular Army — *Army and Navy Journal*.

RUSSIA.—*The Recruit Contingent for 1901*.—The contingent to be selected in 1901, for the whole of the land and sea forces, was fixed by an Imperial Ukase of the 4th June, 1901, at 308,600 men. This number was afterwards decreased by 160 men, and there consequently remained 308,440 men to be enrolled.

The population of Russia, according to the census of 1897, amounted to 129,211,113 souls, and was increasing at the rate of 800,000 a year, or about 2½ to every 1,000. The number of young men inscribed on the census lists was 1,016,406. To this number must be added about 21,837 youths who had no birth certificate, but whose appearance showed them to be old enough for military service, and also about 100,998 young men who were obliged to serve without drawing lots. The total

number, then, of men liable to be called out amounted to 1,139,151. The number of men actually enrolled in the land and sea forces was 305,939. By adding to this number 2,501, who failed to appear, the theoretic total, mentioned above, of 308,440 men, is obtained.

The number of exemptions amounts :—

In the 1st category to	...	...	...	...	...	236,597
„ 2nd „	...	...	...	...	...	203,993
„ 3rd „	...	...	...	...	...	56,646
Or a total of	...	...	...	...	...	497,236

The Boards had to examine 603,136 men, and from them they took 305,939, of whom 2,039 were classified in the Reserve, and 23 were entirely exempted from service. The result of this examination was as follows :—

1. Put back for weak constitutions	...	...	...	...	94,605
2. Taken on trial	...	...	...	...	23,687
3. Submitted for a Second Medical Examination	...	...	...	...	5,184
4. Classified in the Militia (2nd Levy)	...	...	...	...	86,385
5. Utterly unfit for Military Service...	...	...	...	...	66,798
6. Classified in the Militia (1st Levy)	...	...	...	...	233,141

From amongst those men in the enjoyment of exemptions from service, the Boards called the following to the colours :—

In the 3rd category	...	...	...	...	...	5,152
„ 2nd „	...	...	...	...	...	3,300
„ 1st „	...	...	...	...	...	350 ¹

The number for the contingent for 1902 was fixed at 318,645 men, plus 100 Caucasians. The table below gives the numbers fixed for the contingents for the last twenty-two years :—

Active Army on the 1st January, 1903.

1902	...	...	...	...	...	318,645
1901	...	...	...	...	...	308,440
1900	...	...	...	...	...	297,100
1899	...	...	...	...	...	291,100
1898	...	...	...	...	...	286,800

Reserve—13 Classes.

1897	...	...	...	...	...	282,900
1896	...	...	...	...	...	279,000
1895	...	...	...	...	...	274,650
1894	...	...	...	...	...	272,000
1893	...	...	...	...	...	264,400
1892	...	...	...	...	...	264,400
1891	...	...	...	...	...	262,400
1890	...	...	...	...	...	260,400
1889	...	...	...	...	...	255,000
1888	...	...	...	...	...	250,000
1887	...	...	...	...	...	235,000
1886	...	...	...	...	...	235,000
1885	...	...	...	...	...	230,000

¹ All belonging to the Hebrew religion.

Militia (1st Levy).

1884	...	...	...	...	...	...	224,000
1883	...	...	...	...	...	...	218,000
1882	...	...	...	...	...	...	215,000
1881	...	...	...	...	...	...	212,000

If a reduction of 4 per cent. for the first year, 3 per cent. for the second year, and 2 per cent. for the remaining years is made, it will be seen that on the 1st January, 1903, Russia will have at her disposal :—

1,414,000 men in the first 5 classes of the Active Army.

2,635,000 " " 13 Reserve classes.

571,000 " " 4 trained Militia classes of the 1st Levy.

Or altogether a total of 4,620,000 trained men available.—*Revue Militaire.*

CORRESPONDENCE.

SUGGESTIONS FOR AN IMPERIAL MILITIA SERVICE : SOME POINTS FOR CONSIDERATION.

To the Editor of the JOURNAL OF THE ROYAL UNITED SERVICE INSTITUTION.

SIR,—In explanation of my suggestion for an Imperial Service Militia, which appeared in the last number of the *JOURNAL*, will you allow me to add the following four points :—

1. The remodelling of the Militia system, so that both in artillery and infantry it may become a thoroughly efficient service, and be made the true Reserve of the Army in war.
2. The raising of the social status of the Militiaman in counties, through a complete territorialisation of the force, and the improvement of the moral condition of the men and their families, by claiming for Militiamen all the advantages provided for soldiers of the Regular Army.
3. The raising of the Militia service to the importance and dignity of an Imperial Service, by recognising its value as a main factor in any scheme that may be adopted for the defence of the Empire, and for the union of our Army with our Colonial troops.
4. The separation of the Militia from the Volunteers, by ceasing to class it with the Auxiliary Forces, its administration being made inseparable from that of the Army.

Yours truly,

E. F. CHAPMAN,

General.

REPLY TO A CRITICISM BY 2ND LIEUTENANT C. F. ATKINSON,
2ND V.B. OXFORDSHIRE LIGHT INFANTRY, ON COLONEL MAUDE'S
LECTURE, "CONTINENTAL *VERSUS* SOUTH AFRICAN TACTICS."

To the Editor of the JOURNAL OF THE ROYAL UNITED SERVICE INSTITUTION.

SIR,—Would you allow me to point out, in reply to the criticism on my lecture by 2nd Lieutenant C. F. Atkinson, 2nd V.B. Oxfordshire Light Infantry, that one of

the main points I had in view in delivering it was to call attention to the great loss we suffer as an Army from our want of knowledge of modern languages, and the consequent ignorance of the progress that is being made in historical research in other countries.

2nd Lieutenant Atkinson says that the "real course of events in this tactical change is on *good evidence* supposed to be as follows," and then he quotes a short extract from the work of my old brother officer Colonel Home, R.E. I think I can positively affirm that if I could submit to Colonel Home the evidence which has been given us since his death by the publication from Prussian, Austrian, and French archives, he would be the first to agree in the statement of my views. I remember well the conditions of want of adequate time and material under which he wrote, and under similar conditions I should doubtless have come to the same conclusions; but in face of the greater facilities I have myself enjoyed I have formed a different opinion.

I wonder whether 2nd Lieutenant Atkinson has any conception of the amount of literature which from first to last has centred round the name of Mesnil Durand—from the glib way in which he deals with the question I should imagine he has not; if he had he would, I think, appreciate that the points I raised are not susceptible of either proof or disproof within the limits of a short letter. Thirty years ago I should probably have accepted all his statements without reserve; now, after a pretty sustained and arduous course of tactical study, I confess I think differently.

Very truly yours,

F. N. MAUDE,

Lieut.-Colonel, *p.s.c.*,

late R.E.

NAVAL AND MILITARY CALENDAR.

AUGUST, 1902.

- 3rd (S.) 1st and 11th Bns. Imperial Yeomanry left Cape Town for England in the "Aurania."
- 4th (M.) 15th Bn. Imperial Yeomanry arrived at Southampton from Port Elizabeth in the "Columbian."
- " " 12th Bn. Imperial Yeomanry arrived at Southampton from Cape Town in the "Donnelly Castle."
- " " 6th and 7th Bns. Imperial Yeomanry arrived at Southampton from Cape Town in the "Malta."
- 5th (T.) The Scottish Horse left Cape Town for England in the "Goth."
- 6th (W.) 3rd Bn. Imperial Yeomanry left Cape Town for England in the "Kinfauns Castle."
- 7th (Th.) 2nd and 9th Bns. Imperial Yeomanry left Cape Town for England in the "Braemar Castle."
- 9th (Sat.) Their Majesties the King and Queen were crowned at Westminster Abbey.
- " " 3rd Bn. Northumberland Fusiliers arrived at Cape Town from Antigua in the "Roslin Castle."
- 10th (S.) 21st Bn. Imperial Yeomanry arrived at Southampton from Cape Town in the "St. Andrew."

- 11th (M.) Announced that H.M. the King had given Osborne to the nation as a convalescent home for naval and military officers.
- " " H.M. the Queen presented war medals to the *personnel* of the Yeomanry Hospitals at Devonshire House.
- " " 4th and 18th Bns. Imperial Yeomanry arrived at Southampton from Cape Town in the "Goorkha."
- " " 8th Bn. Imperial Yeomanry left Cape Town for England in the "Norham Castle."
- 12th (T.) H.M. the King reviewed the Colonial Coronation Contingent at Buckingham Palace.
- " " 3rd Bn. Manchester Regiment arrived at St. Helena from England in the "Dominion."
- 13th (W.) H.M. the King reviewed Indian troops at Buckingham Palace.
- 14th (Th.) H.M.S. "Endymion" arrived at Spithead from China.
- " " H.M.S. "Scylla" arrived at Spithead from West Indies.
- " " 3rd Bn. Royal Sussex Regiment (Militia) left St. Helena for S. Africa and England in the "Dominion."
- 16th (Sat.) Review of Fleet assembled at Spithead by His Majesty.
- " " G Battery R.H.A. }
6th Dragoon Guards } Left Point Natal for Madras
1st Bn. Essex Regiment } in the "Ionian."
- " " The Boer generals Botha, Delarey, and De Wet arrived at Southampton from South Africa and proceeded to Holland.
- 18th (M.) Inspection of Fleet under weigh off Bembridge by His Majesty.
- 19th (T.) 38th Bn. Imperial Yeomanry left East London for England in the "Palawan."
- " " 5th and 24th Bns. Imperial Yeomanry left Cape Town for England in the "Plassy."
- 20th (W.) H.M.S. "Psyche" arrived at Devonport from West Indies.
- 21st (Th.) 3rd Wiltshire Regiment (Militia) left Cape Town for England in the "Dominion."
- 23rd (Sat.) 3rd Bn. Imperial Yeomanry arrived at Southampton from Cape Town in the "Kinfauns Castle."
- 25th (M.) 1st and 11th Bns. Imperial Yeomanry arrived at Southampton from Cape Town in the "Aurania."
- 27th (W.) 2nd and 9th Bns. Imperial Yeomanry arrived at Southampton from Cape Town in the "Braemar Castle."
- " " 3rd Bn. Liverpool Regiment (Militia) }
4th " " " " } Left Cape Town for England
" " " " " " } in the "Walmer Castle."
- 28th (Th.) The Scottish Horse arrived at Southampton from Cape Town in the "Goth."
- " " 3rd Bn. Highland Light Infantry (Militia) left Cape Town for England in the "Doune Castle."
- 29th (F.) H.M.S. "Trafalgar" and "Royal Sovereign" paid off at Portsmouth.
- " " H.M.S. "Royal Sovereign" commissioned.
- " " 3rd Bn. York and Lancaster Regiment }
(Militia) } Left Cape Town for Eng-
Half 3rd Bn. Argyll and Sutherland High- } land in the "Ostwestry
landers (Militia) } Grange."

- 30th (Sat.) 8th Bn. Imperial Yeomanry arrived at Southampton from Cape Town in the "Norham Castle."
- 31st (S.) G Battery R.H.A. } Arrived at Madras from
6th Dragoon Guards } Point Natal in the
1st Bn. Essex Regiment } "Ionian."
- " " 5th Bn. Middlesex Regiment (Militia) left Cape Town for England in the "Assaye."

FOREIGN PERIODICALS.

NAVAL.

ARGENTINE REPUBLIC.—*Boletín del Centro Naval*. Buenos Aires : June, 1902.—"Bilge Keels" (*continued*). "The Mercantile Marine." "The Engines in Time of War." "Minute by the Minister of Marine." "Petroleum Fuel." "The Gunner's Manual." "Foreign Naval Notes."

AUSTRIA-HUNGARY.—*Mittheilungen aus dem Gebiete des Seewesens*. No. IX. Pola : September, 1902.—"The Admiral's Work of Kaiser Maximilian II." "Remarks on the Present Boilers of War-ships." "The Austro-Hungarian Naval Estimates for 1903." "The English Submarines." "The Order of Battle." "Firing at Armour Plates with Capped Projectiles." "Foreign Naval Notes."

BRAZIL.—*Revista Marítima Brasileira*. Rio de Janeiro : July, 1902.—"Extract from the Report Presented to the Chief of the General Staff by the Commander of the Torpedo-boat Division." "On the Santos Dumont and Severo Air-ships." "The Coast Navigation between Rio and Bahia" (*continued*). "On Light-houses." "The Application of Physico-Chemistry to the Navy" (*continued*). "Foreign Naval Notes."

FRANCE.—*Revue Maritime*. Paris : July, 1902.—"The New Italian Battle-ship 'Vittorio Emanuele.'" "Some Considerations bearing on the Analysis of Great Submarine Depths." "Curiosities of Discipline in Former Days." "Notes on the Co-efficient of the Heeling of a Compass."

August, 1902.—"The Ocean Trust and its Consequences." "An Inventory after a Battle at the end of the Seventeenth Century." "Some Considerations on Musketry Instruction in the Navy."

Le Yacht. Paris : 2nd August, 1902.—"The Naval Manœuvres" (*continued*). "Yachting Notes." "The Mercantile Marine : French and Foreign." 9th August.—"The Naval Manœuvres" (*continued*). "Yachting Notes." 16th August.—"The Naval Manœuvres" (*concluded*). "Yachting Notes." "Conclusion of the Trials of the First-class Cruiser 'Châteaurenault.'" "The Mercantile Marine : French and Foreign." 23rd August.—"A German Opinion of the French Navy." "Yachting Notes." "Automobile Boats." 30th August.—"Projectiles Employed at the Present Time in Our Navy." "Yachting Notes." "The Mercantile Marine : French and Foreign."

Le Moniteur de la Flotte. Paris : 2nd August, 1902.—"Scouting." "The Naval Manœuvres" (*continued*). "The Boiler Question of England." 9th August.—"Torpedo-

boats and Destroyers." "The Naval Manœuvres" (*continued*). 16th August.—"The English Navy: Is it Proportionately Decreasing?" "The Naval Manœuvres" (*concluded*). 23rd August.—"The Suppression of Quarantine." "Foreign Fleets." "After the Manœuvres." "The Hygienic Condition of our Commissioned Ships." 30th August.—"Comparisons." "The Minister of Marine at Rochefort."

La Marine Française. Paris: 1st August, 1902.—"The Forerunners of the Gun-boat." "The Ocean Trust and American Shipbuilding Yards," "An Imaginary War of England against France, Russia, and Germany." "The English Colonies and Naval Expenditure." "A Reserve of English Cruisers." "Foreign Naval Notes." 15th August and 1st September.—"The Necessary Fleet and its Enemies." "England and Germany." "The Forerunners of the Gun-boat" (*concluded*). "A Study on a Naval Saint-Maxent." "Report on the Causes of the Explosion on board the 'Fulton.'" "The Result of the Law of the 3rd March, 1899, on the *Personnel* of the United States Fleet." "The Yarrow Boiler." "Foreign Naval Notes,"

GERMANY. — *Marine-Rundschau.* Berlin: August-September, 1902. — "The Cruise of the 'Augusta' off the French Coast, 1870-71." "The Elements of Fire Control in the Navy." "Some Short Remarks on the Fusion of the Executive and Engineer Officers of the Fleet." "The Italian Naval Estimates, 1902-03, in the Chamber." "Report of the Commander of the 'Hertha' on the Stay of the Ship in Rangoon." "Report of the Cruise of Torpedo-boat No. 90 from Nagasaki to Tsingtau." "The Report of the English Boiler Committee." Discussion on the Essays:—1. "Navigation Instruction in the Navy." 2. "On the Coaling of War-ships." "Foreign Naval Notes."

ITALY.—*Rivista Marittima.* Rome: August-September, 1902.—"Fleet Tactics." "The Engine-room *Personnel*." "The Social Equilibrium in Naval Legislation." "Rational Determination of the Principal Dimensions of Surface Condensers of Naval Engines." "The Venetian-Aragon Plan of Campaign in 1351 against Genoa." Letters to the Director:—"First-class Torpedo-boats." "Foreign Naval Notes."

PORTUGAL.—*Revista Portuguesa, Colonial e Maritima.* Lisbon: June and July, 1902.—Have not been received.

SPAIN.—*Revista General de Marina.* Madrid: September, 1902.—"The English Boiler Committee." "Experiments with Wet Guncotton as Bursting Charges for Shells." "The German First-class Battle-ship 'Zähringen.'" "The Naval Industrial Exhibits at the Düsseldorf Exhibition: The Krupp Pavilion." "A New Treatise on Navigation." "The Casemates for the 14-centimetre Canet Guns mounted on board the Armoured Cruiser 'Cardinal Cisneros.'" "The French Naval Manœuvres of 1902." "Complaints from Ships in the various Atlantic and Pacific Ports, and the Monetary Systems of some of the Spanish-American Republics." "The Growth of Germany's Naval Power." "Foreign Naval Notes."

MILITARY.

AUSTRIA-HUNGARY. — *Militär-Zeitung.* Vienna: 5th August, 1902. — "The Captive Balloon in Warfare." "The Two Years' Period of Service." 13th August.—

"Our Rising Generation of Officers." "Precautions taken for the Defence of Croatia against Turkey in the 16th Century" (*continued*). "The Persian Cossack Brigade." 21st August.—"Our Emperor's Birthday." "The Automobile in the Army." "Precautions taken for the Defence of Croatia against Turkey in the 16th Century" (*continued*). "Demobilisation of the English Forces in South Africa." 29th August.—"Landing Operations." "Precautions taken for the Defence of Croatia against Turkey in the 16th Century" (*concluded*). "Organisation of the Swiss Military Railways." "Clothing and Equipment Reform in France."

Mittheilungen über Gegenstände des Artillerie- und Genie-Wesens. Vienna: August, 1902.—Has not been received.

Organ der Militär-wissenschaftlichen Vereine. Vienna: Vol. LXV., Part 2.—Has not been received.

BELGIUM.—*Bulletin de la Presse et de la Bibliographie Militaires.* Brussels: 15th August, 1902.—"Attack and Defence of Fortified Field Positions" (*concluded*). "The French Eastern Grand Manœuvres in 1901" (with sketch). "Cavalry Scouting from the Revolution to the Present Day." 31st August.—"Cavalry Scouting from the Revolution to the Present Day" (*continued*). "The French Eastern Grand Manœuvres in 1901" (*continued*).

FRANCE.—*Revue du Cercle Militaire.* Paris: 2nd August, 1902.—"A Visit to a Battle-field" (with sketch). "Tactical Scheme." "Evolution of Artillery during the 19th Century." 9th August.—"An Imaginary Russo-Swedish War." "Magenta—A Visit to the Battle-field" (1 sketch). "An Attempt at Military Conscription in Pe-chi-li." "Evolution of Artillery during the 19th Century" (*continued*). 16th August.—"Biserta." "A Russian Heroine." "Evolution of Artillery during the 19th Century" (*concluded*). 23rd August.—"At St. Cyr." "Military Expenditure of the States of the Triple Alliance." "Biserta" (*continued*). "The Swiss Army." "A Russian Heroine" (*concluded*). 30th August.—"Marching to the Sound of the Guns." "Biserta" (*concluded*). "The André Expedition."

Le Spectateur Militaire. Paris: 1st August, 1902.—"The Campaign of 1813" (1 sketch, *continued*). "Plateau de Langres, Faucilles, and Haute-Saône" (*continued*). "The Manufacture of Preserved Meat" (2 sketches, *continued*). "History of the Gardes Françaises" (1 sketch, *continued*). 15th August.—"The Campaign of 1813" (1 sketch, *continued*). "The Cavalryman as a Marksman." "Plateau de Langres, Faucilles, and Haute-Saône" (*continued*). "The Manufacture of Preserved Meat" (*continued*). "History of the Gardes Françaises" (*continued*).

Revue du Génie Militaire. Paris: August, 1902.—Has not been received.

Revue Militaire. Paris: August, 1902.—"The War Budget of the German Empire for 1902." "The German Mobilisation and Centralisation in 1870" (*continued*). "Studies of the South African War, 1899-1900" (*continued*).

Revue d'Histoire. Paris: August, 1902.—"The Battle of Séliman." "The Campaign of 1805 in Germany." "The Dombrowski Division in the 1812 Campaign" (*concluded*). "The War of 1870-71—The 6th August in Lorraine" (*continued*).

Revue d'Artillerie. Paris: July, 1902.—"Automatic Pistols" (*concluded*). "Operations in the Sahara Oases and the Use of Elongated Shells." "The Colt Automatic Machine Gun."

August, 1902.—Has not been received.

Revue du Service de l'Intendance Militaire. Paris : July, 1902.—"Miller's Trade in France." "The Provisioning of the French Expeditionary Corps during the Chinese Campaign of 1900-1901" (*concluded*). "Rapid Agricultural Surveys." "Military Jurisprudence" (*continued*). "Analyses of Food Stuffs from the Exhibition of 1900." "The Present Law regarding Land Warfare—Its Application in recent Conflicts" (*continued*).

August, 1902.—Has not been received.

Revue de Cavalerie. Paris : August, 1902.—Has not been received.

GERMANY.—*Militär-Wochenblatt.* Berlin : 2nd August, 1902.—"From the New Manual for the Officers of the French General Staff." "Military Organisation of Nürnberg in the Fifteenth Century." "Towards what Direction does England's Remount System tend?" "The Persian Cossack Brigade." 6th August.—"Napoleon's relative Strength in the Battles of the Campaign of 1815 in Belgium." "From the New Manual for the Officers of the French General Staff" (*concluded*). "Intelligence from the Belgian Army." "The Management of Soldiers' Kitchens." 9th August.—"Italy's Reserves." "Intelligence from the Swedish Army." "The Lance." "Demobilisation of the English Forces in South Africa." 13th August.—"A History of the Herwarth von Bittenfeld Infantry Regiment." "Nauticus." "On the Work 'Hygiene of our Chargers.'" 16th August.—"The Colours of the 16th." "An Important Range-Finder for Field Artillery on the Battle-field." "Intelligence of the Austro-Hungarian Forces." 20th August.—"Intelligence from the Italian Army." "The Army Order of the 14th May, 1902." 23rd August.—"On the Use of Shrapnel Fire." "Intelligence from the Russian Army." "On the Supervision of Horse Forage." 27th August.—"Draft of a new English Infantry Drill Regulations." "Intelligence from the French Army." "The Fourth Edition of the Work on Tactical Problems for Russian Officers and the Draft of the Field Service Regulation of 1901." "The New Clothing Regulations for the United States Army." 30th August.—"Reminiscences of the Campaign of 1870-71." "Draft of a New English Infantry Drill Regulations" (*continued*). "Intelligence from the Netherland Army."

Internationale Revue über die gesammten Armeen und Flotten. Dresden : August, 1902.—"Military and Naval News from Austria-Hungary, Bulgaria, China, France, Germany, Great Britain, Italy, Roumania, Russia, Switzerland, and the United States." *French Supplement 41.*—"The Artillery at the Düsseldorf Exhibition of 1902." "The Strategic Importance of the Alpine Railways." "The Technical Instruction of Officers." "The Military Importance of the New Russian Railways."

Jahrbücher für die Deutsche Armee und Marine. Berlin : August, 1902.—"The Italian Army under the Pressure of Politics." "Participation of the Detachments of the French Eastern Army in the Battle of Lisaine." "Coast Fortifications." "The Russian General Staff Academy." "The Joining of the Caspian and Black Seas by a Canal." "War Matériel at the Düsseldorf Exhibition of 1902" (*continued*). "The Naval Events in the Franco-German War of 1870-71."

RUSSIA.—*Voïennyy Shbrnik.* St. Petersburg : August, 1902.—Has not been received.

SWITZERLAND.—*Revue Militaire Suisse.* Lausanne : August, 1902.—"Lieut.-Colonel Edward Manuel." "The Reading of Country." "Effect of Infantry Fire on Covering Masses." "A Powerful Explosive—Schneiderite." "The Krupp Mountain Gun, Model 1901, at the Recruits' School at Sion."

UNITED STATES.—*The United Service*. New York : August, 1902.—“The Recent Army Re-organisation.” “Social Life in Spain.” “A Tangled Web.” “The Accidents of History.” “Personal Recollections of what happened in Manila Bay after the Battle.” “A few Facts about Friars.” “A Vaccination Lesson of the Civil War during the Siege of Charleston, S.C.” “A Sprig of Scotch Heather.” “Marshal Masséna.” “Service Salad.” “Major-General Aona R. Chaffee, U.S.A.”

Journal of the United States Artillery. Fort Monroe, Virginia : July-August, 1902.—“Plotting Board for Mortars.” “Firing Mortars at Moving Targets.” “Manual for the 12-inch Breech-Loading Mortar.” “Construction of a Difference Chart.” “Triangle for Telemetric Calculations.” “French Field Artillery.” “Method of Laying Heavy Guns.” “Late Developments in Ordnance and Armour.” “Commentaries on Contemporaneous Art of Defence.” “Professional Notes.” “Book Reviews.”

The contents of the Italian, Portuguese, and Spanish periodicals have been unavoidably held over till next month.

NOTICES OF BOOKS.

Cromwell's Army. A History of the English Soldier from 1642 to 1660. By C. H. FIRTH. London : Methuen. 1901.

Mr. Firth's preface practically disarms criticism, but indeed no such apology was needed from such a painstaking and accurate investigator in a field for which the average soldier finds so little time or opportunity for research, and which, nevertheless, forms a vital chapter in the history of the evolution of modern fighting methods. We can only regret that in common with so many present-day historians, who are willing to devote their talents and time to military history, he did not place himself in communication with this Institution in order to discover other workers in the same direction, who, though quite unequal perhaps to the achievement of a similar high standard of historical excellence, might, nevertheless, as specialists in war, have directed his attention to those points of permanent interest on which further information is still desirable. At the present moment such outside assistance from men who have an established literary reputation would be of enormous value in helping both soldiers and statesmen to a correct appreciation of the lessons of our recent South African experiences, which will be worse than sterile, possibly absolutely fatal to our future efficiency, if viewed as isolated phenomena, conditioned solely by modern weapons, and not as the last chapter available of a continuous evolutionary process, dependent on the steady growth of modern civilisation in all its branches, not merely in the technical progress in guns and rifles. To our mind, military history resolves itself into a series of cycles in which mobility and stationary defence constantly strive against one another for the mastery and in which victory remains with the side best adapted to the conditions of its environment—using the word to embrace climate, topography, and the relative civilisation of the contending forces.

Briefly summarised the sequence is as follows:—In the fourteenth century, the Swiss infantry, in solid squares, defended by rows of 18-foot spears, presented an absolutely unbreakable obstacle to hostile cavalry, but they were slow and peculiarly exposed to danger in broken ground. For their own protection they

developed ground-scouts, marksmen, or sharpshooters, *die verlorene haufe* (forlorn hope), or by whatever other name they might be called. To meet them the mobile force evolved dragoons or mounted musketeers and armed their charging cavalry with pistols.

In open ground the infantry were now helpless, the cavalry rounded up the ground-scouts and drove them in to take shelter under the pikes, then the dismounted dragoons fought down their defence by a concentrated fire from a wider arc, the horsemen rode up rank after rank and pistolled the pikemen, and when the order of the mass was sufficiently disintegrated, the closed squadrons rode in and completed the rout. This led to the production of cavalry by both sides, and victory in the preliminary duel was the first condition for ultimate success. The enemy's cavalry being driven off the field, the destruction of his infantry became in principle a mere question of time, and cavalry re-asserted its pre-eminence in the composition of all armies.

Because both forces now had large bodies of horses to maintain, and food for horses does not grow on mountains or in forests, the armies now gravitated to the plains—thus again forcing the infantry into the background—and plains being more favourable for speed and manœuvre, the best-trained and lightest-armed horsemen swept everything before them. But fast-moving cavalry capable of manœuvring cannot be improvised in the course of an unsuccessful campaign—hence the Swedes once they had acquired a superiority in this kind of warfare, maintained it for years unbroken, and as a consequence their infantry rarely having to stand up to the combined effect of both fire and shock, and acting generally in attack and seldom in defence, came to rely mainly on their fire and less on their pikes. Musketeers and cavalry could move much faster than pikemen, and hence could cover a greater area for subsistence and anticipate their enemy at important points, and now battles began to be won by tactical manœuvring and campaigns to be decided by strategy—a word which, by the way, only made its appearance in its ordinary sense in the early part of the eighteenth century.

But this mobile war soon destroyed its own mainspring: the power of living on the country; and in the absence of a great leader, after the death of Gustavus—who might, had he lived, have organised a system of magazines and supply columns—the mediocre commanders surviving had recourse to the spade and shovel to protract a struggle neither they nor their men had any special interest to see brought to a rapid conclusion.

Since then, in Europe, this cycle has renewed itself time and again, modified locally by special circumstances of fertility, communications, and so forth, each fresh invention being dragged into the service of war, but the power of striking rapid blows has conditioned overwhelmingly both the organisation of nations for immediate action, and the nature of the struggle, whether short and decisive, as in 1806 and 1809, or 1866 and 1870, or long drawn out and dilatory as in 1807, 1812, or 1878. The part the weapons have played has been relatively insignificant, though popular interest has so largely centred upon them.

The whole course of the campaigns of the Civil War seems to us to have grown normally and necessarily out of the circumstances above sketched out, but without this introductory knowledge the sequence of cause and effect is hard to unravel, and it becomes impossible to appreciate the bearing of these campaigns upon subsequent tactical and strategical evolution.

Mr. Firth's book should be read in conjunction with Hoenig's masterly study of Cromwell—while the former serves to correct many errors of detail into which the latter inadvertently fell, the latter gives a far deeper insight into the secret springs of Cromwell's "strategy," using the word in its original sense, viz., "The art of the

General." The relative richness of our country, the absence of formal fortifications, and the driving spirit which made all ranks anxious to finish the struggle, gave a mobility and breadth to his designs which placed him, as Hoenig says, 200 years at least in advance of his time. Had it been possible to preserve our advantage we might have led all Europe in the art of war on land as we undoubtedly led them at sea. But the cramped area of the Netherlands threw us back in the race, and even Marlborough missed the cavalry opportunities the spirit of Cromwell's leading would have given him. Since then we have been content to follow in the wake of Europe, and so overpowering is the brake of tradition, that even when at the close of the Napoleonic wars we had evolved for ourselves the highest ideal of infantry tactics, which, given equality of armament on both sides, always remains unchanged and unchangeable, we abandoned it all in deference to the popular interpretation placed upon events, the true meaning of which did not become apparent even to the actors in these events for 20 years afterwards, if indeed they are entirely understood now.

If Mr. Firth can be prevailed on to give us a second edition of his admirable work, we would suggest that he will double its value by adding the actual notes he made on the armies of the Thirty Years' War before commencing the present work, and add a chapter on Cromwell's "strategy," using the word in the higher meaning above pointed out, and not in the degraded sense it acquired, principally in the Netherlands, during the succeeding century. Nothing has tended more to disgust the average young soldier's mind with military study than the tendency which then arose to treat war as a glorified game of chess, independent of the human nature elements in the combatants, and to account for all victories as the consequence of the relative positions of the contending forces, not as the result of their hard fighting qualifications. The former, made of men and officers, mere brainless pawns, the latter brings home even to the drummer boys their share in their leader's glories, and can alone guarantee that intelligent and hearty co-operation of all ranks in the execution of their general's plans.

PRINCIPAL ADDITIONS TO LIBRARY DURING AUGUST, 1902.

The Long White Mountain. By H. E. M. JAMES. 8vo. London, 1888.

The Marine Steam Engine. By RICHARD SENNETT and HENRY P. ORAM. 6th Edition. 8vo. 21s. London, 1902.

A History of the United States Navy from 1775 to 1902. By EDGAR STANTON MACLAY. Vol. III. 8vo. London, 1902.

Manual of Military Electric Lighting. Official. 8vo. London, 1902.

The History of Freemasonry in Canada. By J. ROSS ROBERTSON. 2 Vols. 8vo. Toronto, 1899.

Africanderism: A Retrospect and a Forecast. By ANGLO-APRICANDER. 8vo. 2s. London, 1902.

Five Stuart Princesses. By ROBERT S. RAIT. 8vo. London, 1902.

Campagne de Russie, 1812. By G. FABEY. Vols. I., II., and III. 8vo. Paris, 1900-02.

Studies in Field Engineering. By Colonel WILKINSON SHAW. 8vo. 4s. Aldershot, 1901.

History of the 45th, 1st Nottinghamshire Regiment (Sherwood Foresters). By Colonel P. H. DALBIAC. 8vo. 3s. 6d. London, 1902.

Minutes of Proceedings of the Institution of Civil Engineers. Vols. CXLVII. and CXLVIII. 8vo. London, 1902.

The Strategy of the Seven Weeks' War. By Major A. D. GILLESPIE-ADDISON. 8vo. 5s. London, 1902.

Au Transvaal et dans le Sud-Africain avec les Attachés Militaires. By R. RAOUL-DUVAL. 8vo. Paris, 1902.

Le Programme Maritime de 1900-1906. Crown. 8vo. 3s. Paris, 1902.

From Aldershot to Pretoria. By W. E. SELLERS. 8vo. London, 1902.

With the Guards' Brigade. By Rev. E. P. LOWRY. 8vo. 1902.

Chaplains in Khaki. By H. K. 8vo. London, 1902.

Siam in the Twentieth Century. By J. G. D. CAMPBELL. 8vo. London, 1902.

BURROW'S

THE ONLY
GENUINE.

MALVERN

"ALPHA BRAND."

Protection against Typhoid and
safeguard of health.

WATERS.

Naval and Military
Officers

will find these pure Waters
the best, either
alone or with
Spirits.

W. & J. BURROW, The Springs, MALVERN.

JEROME SACCONI, LTD.,

Wine and Spirit Merchants


To the ARMY and NAVY.

Importers of Havannah & Manila Cigars, &c.,

GIBRALTAR & PORTSMOUTH.

Telegraphic Addresses:—"SACCONI, GIBRALTAR," "SACCONI, PORTSMOUTH."

5 Strong Points



ROYAL BAR-LOCK
His Majesty's Typewriter Makers.
198, Upper Thames Street.
LONDON, E.C.

Over
350
in use

By the
Admiralty
and the
War Office.

IF YOU WANT—
Apply to
EYRE & SPOTTISWOODE,
East Harding St.,
LONDON,
E.C.



GOVERNMENT PUBLICATIONS

Deposit a/c's opened.
Standing orders received.
.. Lists on application.
.. Any information.

Contains Photographs and Plans of every War Ship in the world; a complete Silhouette System; and an International Signal Code, brought forward by those Navies which have most identified themselves OFFICIALLY with the book.

"ALL THE WORLD'S FIGHTING SHIPS"

EDITED BY
FRED T. JANE
Author of
"The Imperial Russian Navy," etc., etc.

Only Technical Advertisements are inserted.

Advertisement Rates and Terms for Three Years' Contracts may be had from—
C. GILBERT-WOOD, F.R.G.S.,
Granville House, Arundel St., Strand, W.C.

FROM **MR. ELKIN MATHEWS' LIST.**

NOW READY. POTT 4TO. 5s. NETT.

"A GUIDE TO THE BEST HISTORICAL NOVELS AND TALES."
By **JONATHAN NIELD.**

"The Novelist often gives an essentially truer picture of a period than the recorder of bare facts, and Mr. NIELD's Book is an invaluable guide to the Novels to be selected."—*Daily Mail.*

NEW BOOK by **E. H. LACON WATSON.** Cr. 8vo. 6s.

Everybody should Read "CHRISTOPHER DEANE."

Every Cricketer should Read "CHRISTOPHER DEANE."

"We have never read a better description of a cricket match than of that between Winchester and Eton, and the boating scenes at Cambridge are equally good."—*Field.*

London: ELKIN MATHEWS, VIGO STREET, W.

RECENT BOOKS.

THE IMPERIAL RUSSIAN NAVY, its Past, Present and Future. By **FRED. T. JANE,** Author of "All the World's Fighting Ships," "The Torpedo in Peace and War," &c., &c. With 150 Illustrations. Royal 8vo, cloth extra, 30s. net.

CLOWES' NAVAL POCKET-BOOK, 1902. Edited by **L. G. CARR LAUGHTON.** The most valuable Work of Reference now available, containing a full List of Battleships, Ironclads, Gunboats, Cruisers, Torpedo Boats, a List of Dry Docks, and other valuable information concerning all the Navies of the World. Seventh Year of issue. Cloth 16mo, 5s. net.

THE HISTORY OF CHINA. By **D. C. BOULGER,** Author of "Chinese Gordon," "Sir Stamford Raffles," &c., &c. A New Edition, Revised and Brought up to Date. Containing Chapters on the Recent Concessions to the European Powers. Illustrated with Portraits and Maps. Two Vols. Demy 8vo. 24s.

A SUMMER IN HIGH ASIA. A Summer Ramble through Baltistan and Ladakh. By Captain **F. E. S. ADAIR,** Author of "Sport in Ladakh." With a Chapter on Central Asian Trade by Captain **S. H. GOLFREY.** Illustrated and a Map of the Route. Medium 8vo, cloth extra, 12s. 6d. net.

BULLET AND SHOT IN INDIAN FOREST, PLAIN AND HILL. With Hints to Beginners in Indian Shooting. By **C. E. M. RUSSELL, M.R.A.C.,** late Senior Deputy-Conservator of Forests, Mysore District. With a Frontispiece by **C. WHYMPER.** Second Edition. Demy 8vo, cloth, 10s. 6d.

W. THACKER & CO., 2, CREED LANE, LONDON, E.C.

THE ROYAL NAVY LIST.

Contains the Names of over 10,000 Officers on the Active and Retired Lists of the Royal Navy and Royal Marine Forces, together with extensive Records of War and Meritorious Services, only to be found in this work, and

LIST OF SHIPS ON ACTIVE SERVICE, WITH THEIR OFFICERS ARRANGED IN ORDER OF SENIORITY. It is a most exhaustive work, dealing with all Departments of the Service.

PUBLISHED QUARTERLY (500 pages), Price 7s. 6d., post free.

Annual Subscription (payable in advance), £1 7s. 6d., post free.

Officers are earnestly requested to send at once their special services to the Editor.

London: WITHERBY & CO., Publishers, 326, High Holborn, W.C.

Sole Advertisement Contractor:—

C. GILBERT-WOOD, F.R.G.S., F.R.H.S., Granville House, Arundel St., Strand, W.C.

AROUND THE WORLD. A NEW LINE, Operating the Largest Ships in the World.

"In all the World no Trip like this."

NORTHERN STEAMSHIP CO.

Exclusively Passenger Steel Steamships.
Through 1,000 Miles of unsalted Seas.

"ACROSS AMERICA."

Great Northern Railway Line.

Library, Observation and Dining Car Route.
Valley, Plain, and Mountain Peak.

THE SHORTEST, Quickest, and most direct Route to KLONDIKE, British Columbia, ALASKA, or Kootenai Gold Fields, and all CANADIAN and American, North West and Pacific Coast Points, CHINA, JAPAN, and AROUND THE WORLD, Washington, Idaho, Montana, Dakota, MINNESOTA, MANITOBA. Tourist, Sleeping, and Dining Cars a special feature. Unequalled advantages offered the Tourist, Hunter, Rancher, Farmer, Miner, Speculator, Settler. Through Tickets issued and Berths secured via all Atlantic Steamship Lines. Passengers met on arrival in America by courteous Agents. Send for printed matter and all information.

W. M. LOWRIE, G.P.A.,
Northern Steamship Co.,
Buffalo, N.Y.

F. I. WHITNEY, G.P. & T.A.,
Great Northern Railway,
St. Paul, Min.

H. G. McMICKEN, E.T.A.,
21, Cockspur Street,
London, S.W.

Telegrams—"Trafficker, London."

"POROUS, YET THOROUGHLY WATER-PROOFED."

Made on the Premises by our own Workmen.



THE "ROSCUT," Regd. THE "PORTSMOUTH," Regd.

From 50/-

From 55/-

With "D.I.Y." Cuffs (Regd.) Devon Imperial Yeomanry.
As supplied to H.R.H. Princess Charles of Denmark

SUITABLE for Riding, Driving, Golfing, Shooting, Fishing, Yachting, or Travelling abroad or at home. No lady or gentleman should be without one.

The distinction in shape of the "Portsmouth" and "Roscut" Coats, from the numerous imitations, is that the sleeves are with the ordinary seam at shoulder, and not like the bottle-shaped "Raglans" running up into the collar. The arm-holes are very large, giving freedom, and the sleeve straight, with the "D.I.Y." cuffs, which were of such comfort to every soldier that wore them in the South African Campaign.

Moreover, a fit can be ensured without trying on if measurements as directed are given, viz.:—Size round chest, waist, hips, length of inside seam of coat or jacket, height of figure, and a "Portsmouth" or "Roscut" shall be sent by return, or made and sent in three days.

Patterns and Prices Post Free from—

J. & G. ROSS,

227 & 228, HIGH STREET, EXETER.

Telegraphic Address: "JUGON, EXETER."

Telephone: No. 46, EXETER.

LONG LIST OF SUCCESSES in ARMY AND OTHER EXAMINATIONS.
DECEMBER, 1901.

SANDHURST.

21st.*H. W. GOLDNEY (1st in Latin)	9,735	10th *G.G. OLIVER (2nd in Eng. His.)	8,429
*W. H. FRY - - -	8,533	89th J. J. BRAMBLE - - -	6,673
*G. M. ROOME - - -	8,328	S. F. D. GREIG - - -	5,099
		W. J. H. RALSTON - - -	5,070

Extra Tuition in Evenings by experienced Honour Men. Fees extremely moderate.

EASTBOURNE.

**PREPARATORY FOR THE PUBLIC SCHOOLS AND
ROYAL NAVY.**

Large House and Grounds, within 100 yards of the Downs. Sea bathing below, at foot of cliff.

RECENT NAVAL & PUBLIC SCHOOL SUCCESS.

TERMS MODERATE.

Apply for Prospectus to—
G. H. GOWRING, M.A., Oxon.,
Headmaster.

GERMANY.

ARMY, INDIA FORESTS, UNIVERSITIES.

Mr. W. HODGSON, M.A.,

ALTE BURG, AERZEN, PROV. HANNOVER.

A Limited Number of PUPILS received to be Prepared for Competitive Examinations and for Universities.

STAFF OF SIX RESIDENT TUTORS.
Special facilities for German & French.
House in Country.
Individual Instruction in ALL Subjects.

FOR DAUGHTERS OF
OFFICERS AND GENTLEMEN.

Well situated in a beautiful country with good climate and gravel soil; within 20 minutes of Frankfurt o Main, with **Conservatoire of Music (formerly Rafta)**, Academy of Drawing and Painting, in Hanau. First-class teaching in all general subjects; particular attention paid to languages and music. Church of England. Home comforts and care.

Children met in London, once a year, at Easter. At other times and places in England and on the Continent according to agreement.

According to agreement.

The Dowager Lady ASHBURTON, England.
Lady EVANS, Lovesgrove, Aberystwith, Wales.
Rev. A. O. & Mrs. HARDY, Smarden, Kent.
Madame de MAGNIN, Reims, France.
The Honble. Mrs. MARKER, Combe, Honiton, Devon.
Rev. B. DEEDS, late Archdeacon of Lucknow,
Hawkhurst, Kent.
Surg.-Maj. J. SYKES, M.D., Jhansi, N.W. India.

REV. O. WATKINS, Archdeacon of Lucknow.
Prof. DR. WIESE, Director of the Royal Academy,
Hannau/Main.
Rev. J. GARFORTH, Spexhall Rectory, Halesworth,
Suffolk.
A. SCOTT, Esq., 7, Avonmore Road, Kensington,
London.

REFERENCES

Rev. O. WATKINS, Archdeacon of Lucknow.
Prof. Dr. WIESE, Director of the Royal Academy,
Hannau/Main.
Rev. J. GARFORTH, Spexhall Rectory, Halesworth,
Suffolk.
A. SCOTT, Esq., 7, Avonmore Road, Kensington,
London.

APPLY FOR PROSPECTUS TO THE PRINCIPALS—

MISS KÄHLER, Dipl. C.M.M.C.H.M., MISS A. KÄHLER, Dipl., 10, Grimmstrasse, Hanau o/Main, Germany.

Mr. A. D. BROWN JOHN, B.A.,

Cambs.,
LYNTON HOUSE, RICHMOND, SURREY.

**Prepares for all Army, University,
and Civil Service Examinations.**

JULY, 1902—

MR. S. R. MAYERS, 8th I.P.
MR. F. A. J. MACKENZIE, 15th I.P.
MR. C. F. KILNER, 3rd R.M.L.I.
MR. H. F. HUDSON, Qualified for
India Cadetship.

First in German.
First in Geology.
Third in Mathematics ii.

FULL PROSPECTUS
ON APPLICATION

MIDLANDS.

Private Tuition.

ARMY & UNIVERSITY EXAMINATIONS.

Rev. J. SCOTT RAMSAY, M.A.,

Receives a limited number of Pupils to be prepared for above.

Individual attention.
Advantages for Science.
Military Tutor and Sergeant-Instructor.
Healthy Neighbourhood.

Great Casterton Rectory,
STAMFORD.

1874.
1875.
1876.
1877.
1878.
1879.
1880.
1881.
1882.
1883.
1884.
1885.
1886.
1887.
1888.
1889.
1890.
1891.
1892.
1893.
1894.
1895.
1896.

1897.
1898.
1899.
1900.
1901.

Army, University, & other Examinations.

Mr. J. L. WATSON, M.A., Oxon.,

Late Scholar of Brasenose, First Class Honours (formerly of Richmond House, Worthing), receives Four or Five Pupils for the above. Recent successes include—Cooper's Hill Admission; Direct Commission in the Royal Artillery (Militia Candidate); R.M.C., Sandhurst; Cambridge General for Degree.

Address—MIDDLETON HOUSE,
BOGNOR, SUSSEX.

.. Terms Moderate

**All APPLICATIONS for
ADVERTISEMENT Space
In THIS JOURNAL**

.. SHOULD BE MADE TO ..

The Sole Advertisement Contractor,

C. GILBERT-WOOD, F.R.G.S., F.R.H.S.,

GRANVILLE HOUSE,
ARUNDEL STREET,
STRAND, LONDON, W.C.

GERMANY.

Mr. A. V. H. ADAMS, M.A., Cantab.,

AND ..

Mr. V. C. H. MILLARD,

M.A., Cantab., F.R.G.S.

(Assisted by an able and experienced Staff),

Prepare a limited number of PUPILS for all Army Examinations, India Forests, Indian Police, Cooper's Hill, Universities, &c., and all Competitive Examinations.

Strictly individual instruction in all subjects.

Special facilities for German and French.

Established 1873.

List of recent successes and Prospectus on application.

Address—5, DREISAMSTRASSE,

FREIBURG, BADEN,

GERMANY.

Royal United Service Institution.

PRIZE ESSAY GOLD MEDALLISTS with rank at time of Essay.

- 1874. Captain H. W. L. HIME, Royal Artillery.
- 1875. Commander GERARD H. U. NOEL, R.N.
- 1876. Lieutenant JOHN F. G. ROSS OF BLADENBURG, *p.s.c.*, Coldstream Guards.
- 1877. No Medal Awarded.
- 1878. Captain EMILIUS CLAYTON, *p.s.c.*, Royal Artillery.
- 1879. Captain the Hon. EDMUND R. FREMANTLE, C.B., C.M.G., A.D.C., R.N.
- 1880. Captain J. K. TROTTER, *p.s.c.*, Royal Artillery.
- 1881. Captain LINDESAY BRINE, R.N.
- 1882. No Medal Awarded.
- 1883. Captain CHARLES JOHNSTONE, R.N.
- 1884. Captain G. F. BROWNE, *p.s.c.* Northamptonshire Regiment.
- 1885. Lieutenant FREDERICK C. D. STURDEE, R.N.
- 1886. Captain C. E. CALLWELL, *p.s.c.*, Royal Artillery.
- 1887. No Medal Awarded.
- 1888. Captain J. F. DANIELL, *p.s.c.*, R.M.L.I. (Military Medal).
- 1889. Captain HENRY F. CLEVELAND, R.N.
- 1890. Captain G. E. BENSON, *p.s.c.*, Royal Artillery.
- 1891. Captain ROBERT W. CRAIGIE, R.N.
- 1892. Lt.-Colonel J. FARQUHARSON, C.B., *p.s.c.*, Royal Engineers.
- 1893. Commander F. C. D. STURDEE, R.N.
- 1894. Major F. B. ELMSLIE, Royal Artillery.
- 1895. Commander J. HONNER, R.N.
- 1896. Captain G. F. ELLISON, *p.s.c.*, The Queen's (Royal West Surrey Regiment).
- 1897. Commander GEORGE A. BALLARD, R.N.
- 1898. Captain W. B. BROWN, Royal Engineers.
- 1899. Commander GEORGE A. BALLARD, R.N.
- 1900. No Medal Awarded.
- 1901. Lieutenant LIONEL H. HORDERN, R.N.

NOTED
FOR
BEAUTIFUL
WORK.



Send for Catalogue.

50, Holborn Viaduct
LONDON,
E.C.

The Secretary of the Royal United Service Institution will be glad to receive any old Portraits, Battle Prints, and Sketches of a Naval and Military character. Any old Badges, Shoulder-belt Plates, or War Medals will be gladly accepted for the Museum.

Established Jan., 1894.



WOOD'S Advertising and Publishing Offices.

Telephone No. 4680, GERRARD.

Sole Advertisement Contractor to the
Naval & Military Press.

ALL THE WORLD'S FIGHTING SHIPS

(Supported by the British, Russian, Japanese, Norwegian, and Argentine Governments).

THE ROYAL NAVY LIST *(Supported by the Admiralty).*

THE JOURNAL OF THE ROYAL UNITED SERVICE INSTITUTION

(Published under the Authority of the Council).

THE ELECTRO-CHEMIST AND METALLURGIST.

HOW TO ENTER THE ROYAL NAVY.

THE NAVAL AND MILITARY REVIEW.

THE NAVAL DIARY AND HANDBOOK.

FELIX CIVIL SERVICE GUIDE.

FELIX EDUCATIONAL SERIES.

THE STATE CORRESPONDENT, &c., &c.

Lowest Office Rates and Special Discounts for Advertisements in ALL Newspapers.

C. GILBERT WOOD, F.R.G.S.,

PUBLISHER AND ADVERTISEMENT CONTRACTOR,

GRANVILLE HOUSE, 3, ARUNDEL STREET, STRAND, W.C.

ALL COMMUNICATIONS MUST BE ADDRESSED TO THE FIRM.

THE SCOTTISH WIDOWS' FUND

Life Assurance Society

*The Whole Funds and Profits
Belong to the Members*



Accumulated Funds . . £16,000,000

Annual Revenue . . . £1,650,000

Persons desiring to effect Life Assurances

Should Read the Society's Prospectus

Containing valuable information for guidance in selecting an Office

EDINBURGH: 9 ST. ANDREW SQUARE. LONDON: 28 CORNHILL, E.C., & 5 WATERLOO PLACE, S.W.

Dublin . . 41 Westmoreland St.

Leeds . . 21 Park Row.

Manchester . . 21 Albert Square

Glasgow . . 114 W. George Street.

Bristol . . 28 Baldwin St.

Birmingham . . 12 Bennett's Hill.

Liverpool . . 48 Castle Street.

Belfast . . 2 High Street.

Newcastle . . 12 Grey Street.

Agencies in all the Principal Towns in the United Kingdom.



THE "DANDIE DINMONT" LIQUEUR SCOTCH WHISKY.

Dr. STEVENSON MADAM says:

"A Genuine First-Class Spirit." "Well Matured." "Free from Fusel Oil." "Of Pure and Excellent Quality."

When you ask for "Special Scotch," see that you get "Dandie Dinmont," the perfection of all Scotch Whiskies.

42/- per 1 doz. Case, Carriage Paid.

SOLE PROPRIETORS:

A. ALEXANDER & CO.,

DISTILLERS,

LEITH, SCOTLAND.

FEE 60 GUINEAS.

School Ship "CONWAY," LIVERPOOL.



**For Training Young Gentlemen to become
Officers in Merchant Steamers.**

For PROSPECTUS apply to the Captain,

A. T. MILLER, R.N.

Retail Price,
2/- each.



THE NEW . . .

SPARKLET SYPHON

Can now be re-filled at home at the small cost of

Per **1/4** Dozen.

This is the latest improved form of Sparklet Bottle, and is charged by ONE LARGE SPARKLET BULB. The contents can be drawn off in small quantities as required.

AERATORS, LTD., 120, Oxford Street, London, W.

IN THE HEART OF EVERYTHING.

ST. ERMIN'S HOTEL

(Close to Westminster Abbey),

LONDON.

INCLUSIVE TERMS: from 10s. 6d. per day.

Telegraphic { For Visitors - "Erminites, London."
Addresses { For Management - "Unparalleled, London."

THE KING



has intimated his pleasure that the
Prince of Wales's Hospital Fund for London
established by His Majesty when Prince of Wales,
shall be known as

**KING EDWARD'S HOSPITAL FUND
FOR LONDON.**

New Address: 31, CHEAPSIDE, E.C.

SIR W. A. ROSE & CO.,

Manufacturers of Finest

PAINTS, OILS, VARNISHES.

Contractors to the Admiralty and War Office.

**66, Upper Thames St., and Rose's Wharf,
LONDON.**

THE ADVERTISEMENT DEPARTMENT OF THIS JOURNAL IS CONDUCTED IN C. GILBERT-WOOD'S ADVERTISING
OFFICES, GRANVILLE HOUSE, ARUNDEL STREET, STRAND, LONDON, W.C., WHERE ALL
COMMUNICATIONS SHOULD BE ADDRESSED.
TELEPHONE NO. 4680, GERRARD.

